Incident Number: nOY1704645272

Release Assessment and Closure

Aline 9012 JV-P #002

Section 36, Township 20 South, Range 34 East

API: 30-025-42771

County: Lea

Vertex File Number: 24E-02758

Prepared for:
BTA Oil Producers

Prepared by:
Vertex Resource Services Inc.

Date:
June 2024

Release Assessment and Closure
Aline 9012 JV-P #2
Section 36, Township 20 South, Range 34 East
API: 30-025-42771
County: Lea

Prepared for:
BTA Oil Producers
104 S. Pecos
Midland, Texas 79701

New Mexico Oil Conservation Division – District 1 Hobbs
1625 N French Drive
Hobbs, New Mexico 88240

Prepared by:
Vertex Resource Services Inc.
3101 Boyd Drive
Carlsbad, New Mexico 88220

Wyatt Wadleigh

6/12/2024

Wyatt Wadleigh, B.Sc.
ENVIRONMENTAL TECHNICIAN, REPORTING

Date

Chance Dixon

6/12/2024

Chance Dixon, B.Sc.
PROJECT MANAGER, REPORT REVIEW

Date

Table of Contents

In-text Tables

List of Figures

List of Tables

List of Appendices

1.0 Introduction

BTA Oil Producers (BTA) retained Vertex Resource Services Inc. (Vertex) to conduct a Release Assessment and Closure for a crude oil release that occurred on February 1, 2017, at Aline 9012 JV-P #002 API 30-025-42771 (hereafter referred to as the "Site"). BTA submitted an initial C-141 Release Notification (Appendix A) to New Mexico Oil Conservation Division (NMOCD) District 1 on February 15, 2017. Incident ID number nOY1704645272 was assigned to this incident.

This report describes the release assessment and remediation activities associated with the site. The information presented demonstrates that closure criteria established in Table I of 19.15.29.12 of the *New Mexico Administrative Code* (NMAC; New Mexico Oil Conservation Division, 2018) related to NMOCD have been met and all applicable regulations are being followed. This document is intended to serve as a final report to obtain approval from NMOCD for the closure of this release, with the understanding that restoration of the release site will deferred until all oil and gas activities are terminated and the site is reclaimed as per NMAC 19.15.29.13 as the pad is still in commission.

2.0 Incident Description

The release occurred on February 1, 2017, due to a malfunction from a heater/treater that sent fluid to the flare stack, releasing a mist of oil, which in turn caused a small portion to drift into the pasture adjacent to the battery location. The incident was reported on February 15, 2017, and involved the release of approximately 4 barrels (bbl.) of crude oil both on the pad site and off the pad site. Approximately 2 bbl. of free fluid was removed during the initial clean-up and disposed of at an approved waste facility. Additional details relevant to the release are presented in the C-141 Report.

3.0 Site Characteristics

The site is located approximately 14 miles southwest of Monument, New Mexico (Google Inc., 2024). The legal location for the site is Section 36, Township 20 South and Range 34 East in Lea County, New Mexico. The release area is located on private property. An aerial photograph and site schematic are presented on Figure 1.

The location is typical of oil and gas exploration and production sites in the Permian Basin and is currently used for oil and gas production and storage. The following sections specifically describe the release area of the site on or in proximity to the constructed pad (Figure 1).

The *Geological Map of New Mexico* (New Mexico Bureau of Geology and Mineral Resources, 2024) indicates the site's surface geology primarily comprises To – o=Ogalla Formation (lower Pliocene to middle Miocene) - Alluvial and eolian deposits, and petrocalcic soils of the southern High Plains. Locally includes Qoa. The predominant soil texture on the site is KO: Kimbrough gravelly loam, dry, 0 to 3% slopes, and SE: Simona fine sandy loam 0 to 3 (United States Department of Agriculture, Natural Resources Conservation Service, 2024). Additional soil characteristics include a drainage class of well drained with a runoff class of very high. The karst geology potential for the site is low (United States Department of the Interior, Bureau of Land Management, 2018).

The surrounding landscape is associated with Southern High Plains with elevations ranging between 2500 and 4800 feet. The climate is semiarid with average annual precipitation ranging between 14 and 16 inches. Using information from the United States Department of Agriculture, the dominant vegetation was determined to be short and midgrass species with some forb and woody species (R077DY049TX; United States Department of Agriculture,

Natural Resources Conservation Service, 2024). Limited to no vegetation is allowed to grow on the compacted production pad, right-of-way, and access road.

4.0 Closure Criteria Determination

The nearest active well to the site is a United States Geological Survey (USGS) monitoring well located approximately 1.25 miles west of the site (United States Geological Survey, 2024). Data from 2014 shows the USGS borehole recorded a depth to groundwater of 733 feet below ground surface (bgs). Information about the depth of groundwater determination is included in Appendix B.

There is no surface water present at the site. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is the Nearest Watercourse (National Wetlands Inventory) located approximately 35 miles southwest of the site (United States Fish and Wildlife Service, 2024).

At the site, there are no continuously flowing watercourses or significant watercourses, lakebeds, sinkholes, playa lakes or other critical water or community features as outlined in Paragraph (4) of Subsection C of 19.15.29.12 N

Closure Criteria Determination			
Site Name: Aline 9012 JVP #002			
Spill Coordinates: 32.53394572, -103.505825		**X: UTM easting**	**Y: UTM northing**
Site Specific Conditions		**Value**	**Unit**
1	Depth to Groundwater (nearest reference)	**<50**	feet
	Distance between release and nearest DTGW reference	**6,652**	feet
		1.25	miles
	Date of nearest DTGW reference measurement	**July 1, 2014**	
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	186,273	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	58,691	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	42,153	feet
5	i) Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, **or**	6,065	feet
	ii) Within 1000 feet of any fresh water well or spring	6,065	feet
6	Within incorporated municipal boundaries or within a defined municipal fresh water field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended, unless the municipality specifically approves	No	(Y/N)
7	Within 300 feet of a wetland	1,369	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
	Distance between release and nearest registered mine	84,797	feet
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low
	Distance between release and nearest unstable area	89,769	feet
10	Within a 100-year Floodplain	D	year
	Distance between release and nearest FEMA Zone A (100-year Floodplain)	126,892	feet
11	Soil Type	KO and SE	
12	Ecological Classification	R077DY049TX	
13	Geology	To	
	NMAC 19.15.29.12 E (Table 1) Closure Criteria	<50'	<50' 51-100' >100'

Based on Closure Criteria Research and site characterization, the closure criteria determined for the site are associated with the following constituent concentration limits as presented in Table 2.

Table 2. Closure Criteria for Soils Impacted by a Release DTGW <50 feet bgs

Minimum depth below any point within the horizontal boundary of the release to groundwater less than 10,000 mg/l TDS	Constituent	Limit
< 50 feet	Chloride	600 mg/kg
	TPH (GRO+DRO+MRO)	100 mg/kg
	BTEX	50 mg/kg
	Benzene	10 mg/kg

TDS – total dissolved solids
TPH – total petroleum hydrocarbons, GRO – gas range organics, DRO – diesel range organics, MRO – motor oil range organics
BTEX – benzene, toluene, ethylbenzene and xylenes

5.0 Site Assessment

Characterization of the release area was completed on June 1, 2024, which identified the area of the release specified in the initial C-141 report. Vertex investigated the area based historical aerial imagery of the release area available on Google Earth in 2017 as the staining was no longer visible. The impacted area was sampled, and field screened for vertical and horizontal delineation. Vertex collected a total of 16 samples at eight sample points (boreholes). Each borehole hit refusal from 0.5 to 2 feet bgs. Field screening consisted of analysis using a Photo Ionization Detector (volatile hydrocarbons), Dexsil Petroflag using EPA SW-846 Method 9074 (extractable hydrocarbons), and Titration (chlorides). It was determined that no remnant impacts exceeding NMOCD's strictest closure criteria remained in the release area and no remedial activities were required. The Daily Field Reports associated with the site inspection are included in Appendix C.

6.0 Closure Request

The release area was fully delineated by June 1, 2024. Delineation samples were analyzed by the laboratory and found to be below closure criteria for areas where depth to groundwater is less than 50 feet bgs as per 19.15.29.12 NMAC; Therefore, no remedial activities are required. Based on these findings, BTA requests that this release be closed. Vertex recommends no additional remediation actions to address the impacted area at the site. There are no anticipated risks to human, ecological or hydrological receptors at the site. The pad including the release area will be reclaimed to the requirements set forth in 19.15.29.13 NMAC and landowner stipulations when all oil and gas activities are terminated and the site has been decommissioned.

BTA certifies that all information in this report and the appendices are correct and that they have complied with all applicable closure requirements and conditions in Division rules and directives to meet NMOCD requirements to obtain closure on the site. Should you have any questions or concerns, please do not hesitate to contact Chance Dixon at 575.988.1472 or cdixon@vertexresource.com.

7.0 References

Google Inc. (2024). *Google Earth Pro (Version 7.3.3)* [Software]. Retrieved from https://earth.google.com

New Mexico Bureau of Geology and Mineral Resources. (2024). *Interactive Geologic Map*. Retrieved from https://maps.nmt.edu/

New Mexico Department of Surface Water Quality Bureau. (2024). *Assessed and Impaired Waters of New Mexico*. Retrieved from https://gis.web.env.nm.gov/oem/?map=swqb

New Mexico Energy, Minerals and Natural Resources Department. (2024). *OCD Permitting - Spill Search*. Retrieved from https://wwwapps.emnrd.nm.gov/ocd/ocdpermitting/Data/Spills/Spills.aspx

New Mexico Mining and Minerals Division. (2024). *Coal Mine Resources in New Mexico*. Retrieved from https://nm-emnrd.maps.arcgis.com/apps/webappviewer/index.html?id=5f80f3b0faa545e58fe747cc7b037a93

New Mexico Office of the State Engineer. (2024a). *Point of Diversion Location Report - New Mexico Water Rights Reporting System*. Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/wellSurfaceDiversion.html

New Mexico Office of the State Engineer. (2024b). *Water Column/Average Depth to Water Report - New Mexico Water Rights Reporting System*. Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/waterColumn.html

New Mexico Office of the State Engineer. (2024c). *Well Log/Meter Information Report - New Mexico Water Rights Reporting System*. Retrieved from http://nmwrrs.ose.state.nm.us/nmwrrs/meterReport.html

New Mexico Oil Conservation Division. (2018). *New Mexico Administrative Code – Natural Resources and Wildlife Oil and Gas Releases*. Santa Fe, New Mexico.

United States Department of Agriculture, Natural Resources Conservation Service. (2024). *Web Soil Survey*. Retrieved from https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

United States Department of Homeland Security, Federal Emergency Management Agency. (2024). *FEMA Flood Map Service: Search by Address*. Retrieved from https://msc.fema.gov/portal/search?AddressQuery=malaga%20new%20mexico#searchresultsanchor

United States Department of the Interior, Bureau of Land Management. (2018). *New Mexico Cave/Karst*. Retrieved from https://www.nm.blm.gov/shapeFiles/cfo/carlsbad_spatial_data.html

United States Fish and Wildlife Service. (2024). *National Wetland Inventory - Surface Waters and Wetlands*. Retrieved from https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/

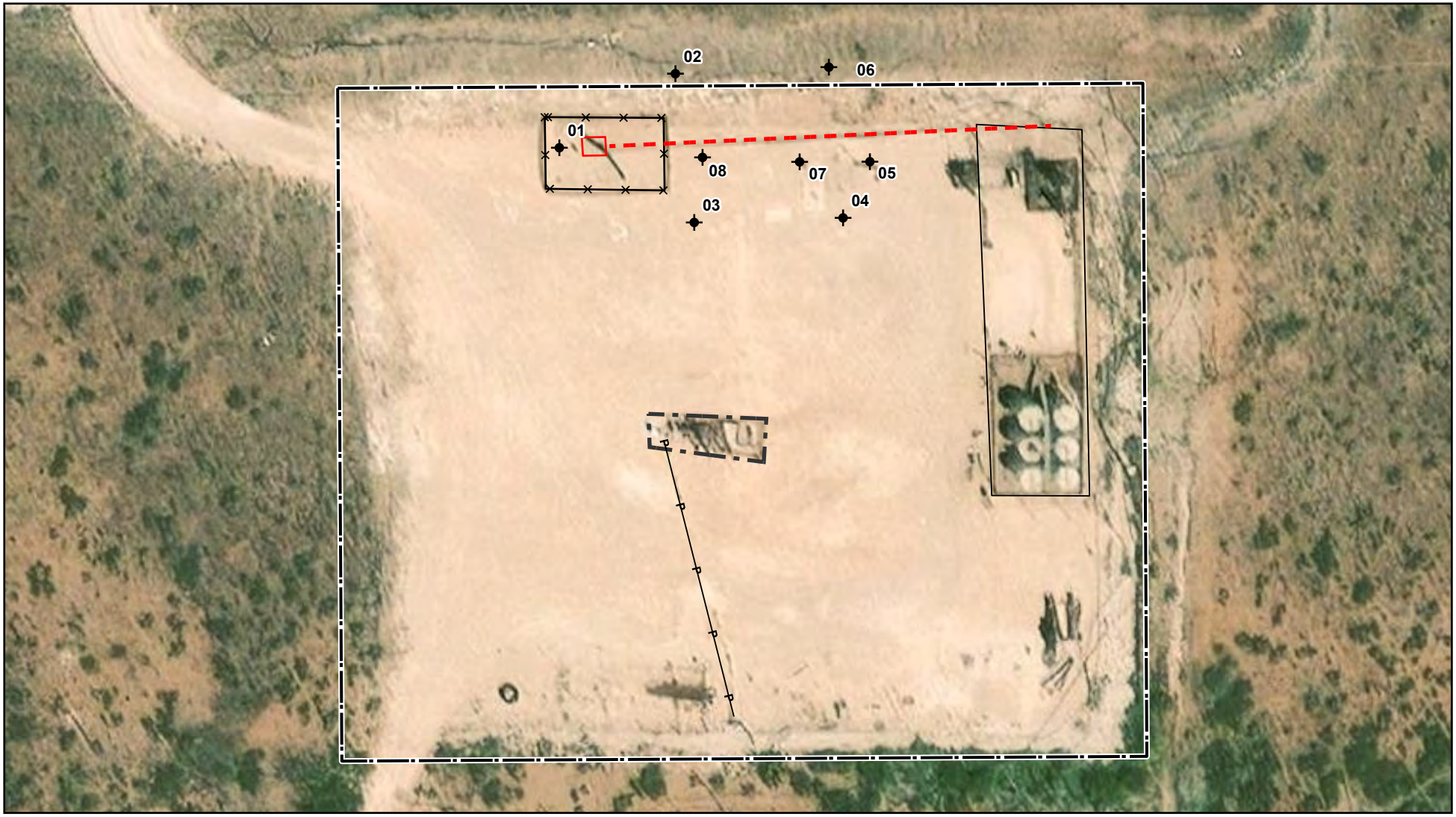
United States Geological Survey. (2024). *National Water Information System: Web Interface*. Retrieved from https://waterdata.usgs.gov/nwis

8.0 Limitations

This report has been prepared for the sole benefit of BTA Oil Producers. This document may not be used by any other person or entity, except the New Mexico Oil Conservation Division, without the express written consent of Vertex Resource Services Inc. (Vertex) and BTA Oil Producers. Any use of this report by a third party, any reliance on decisions made based on it, or damages suffered as a result of the use of this report are the sole responsibility of the user.

The information and conclusions contained in this report are based upon work undertaken by trained professional and technical staff following generally accepted scientific practices current at the time the work was performed. The conclusions and recommendations presented represent the best judgment of Vertex based on the data collected during the assessment. Due to the nature of the assessment and the data available, Vertex cannot warrant against undiscovered environmental liabilities. Conclusions and recommendations presented in this report should not be considered legal advice

FIGURES



Borehole (Prefixed by "BH24-")
Flare Line
Fence
Pump Jack
Electrical Conduit
Approximate Lease Boundary
Flare
Tank Battery and Fence

VERTEX

0 25 50 ft

NAD 1983 UTM Zone 13N

Date: Jun 06/24

Map Center:
Lat/Long
32.533958°,-103.50586°

N

Characterization Schematic
Aline 9012 JVP #002

FIGURE:
1

BTA

Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Georeferenced image from Esri, 2023. Approximate site boundary from sketch by Vertex Professional Services Ltd. (Vertex), 2024. Site features from GPS, Vertex, 2024.

VERSATILITY. EXPERTISE.

Document Path: G:\1-Projects_US PROJECTS\BTA Oil Producers LLC\2024\24E-02758 - Aline 9012 JVP #002\Project\24E-02758.aprx

TABLES

Client Name: BTA Oil Producers LLC.
Site Name: Aline 9012 JVP #002
NMOCD Tracking #: 30-025-42771
Project #: 24E-02758
Lab Report(sX): H243137

Table 3. Characterization/Confirmatory Sample Field Screen and Laboratory Results - Depth to Groundwater <50 feet bgs

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(ppm)	(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BH24-01	0	May 31, 2024	0	20	243	ND	ND	ND	ND	ND	ND	ND	32
BH24-01	2	May 31, 2024	0	16	440	ND	ND	ND	ND	ND	ND	ND	16
BH24-02	0	May 31, 2024	0	60	447	ND	ND	ND	ND	ND	ND	ND	16
BH24-02	0.5	May 31, 2024	0	57	342	ND	ND	ND	ND	ND	ND	ND	16
BH24-03	0	May 31, 2024	0	14	370	ND	ND	ND	ND	ND	ND	ND	32
BH24-03	1	May 31, 2024	0	13	218	ND	ND	ND	ND	ND	ND	ND	32
BH24-04	0	June 1, 2024	0	23	233	ND	ND	ND	ND	ND	ND	ND	32
BH24-04	1.5	June 1, 2024	0	20	500	ND	ND	ND	ND	ND	ND	ND	48
BH24-05	0	June 1, 2024	0	34	373	ND	ND	ND	ND	ND	ND	ND	32
BH24-05	1	June 1, 2024	0	25	253	ND	ND	ND	ND	ND	ND	ND	32
BH24-06	0	June 1, 2024	0	71	300	ND	ND	ND	ND	ND	ND	ND	16
BH24-06	1	June 1, 2024	0	31	153	ND	ND	ND	ND	ND	ND	ND	80
BH24-07	0	June 1, 2024	0	30	323	ND	ND	ND	ND	ND	ND	ND	32
BH24-07	1	June 1, 2024	0	13	273	ND	ND	ND	ND	ND	ND	ND	16
BH24-08	0	June 1, 2024	0	**428**	420	ND	ND	ND	ND	ND	ND	ND	32
BH24-08	1	June 1, 2024	0	42	235	ND	ND	ND	ND	ND	ND	ND	16

"-" indicates not analyzed/assessed
Bold and grey shaded indicates exceedance outside of NMOCD Closure Criteria (on-pad)
Bold and green shaded indicates exceedance outside of NMOCD Reclamation Criteria (off-pad)

APPENDIX A - NMOCD C-141 Report(s)

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

April 11, 2017

CLAY TIPTON

BTA Oil Producers

103 South Pecos

Midland, TX 79701

RE: ~~ALPINE~~ ALINE BATTERY

Enclosed are the results of analyses for samples received by the laboratory on 04/11/17 10:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised March 17, 1999

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	BTA Oil Producers LLC	Contact	Pam Inskeep
Address	104 S. Pecos, Midland, TX 79701	Telephone No.	(432) 682-3753
Facility Name	Aline 9012 JV-P #2 30-025-42771 32.533822, -103.505338	Facility Type	O/G battery

Surface Owner S&S Inc (Sims)	Mineral Owner	Lease No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
S	36	20S	34E	1058	N	200	E	Lea

NATURE OF RELEASE

Type of Release Minor	Volume of Release 4 BO	Volume Recovered 2 BO
Source of Release heater/treater malfunction	Date and Hour of Occurrence 9:00 a.m. 2/1/2017	Date and Hour of Discovery 9:00 a.m. 2/1/2017
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Olivia Yu – NMOCD	
By Whom? Pam Inskeep	Date and Hour 2:05 pm 2/1/2017	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*
N/A

RECEIVED
By Olivia Yu at 12:20 pm, Feb 15, 2017

Describe Cause of Problem and Remedial Action Taken.*

Heater/treater malfunction, sent fluid to the flare stack, released fine mist of oil. A small amount of the mist drifted a few fee into the pasture directly adjacent to the battery location. Recovered all fluid possible and disposed of at an approved waste facility. No further remediation is anticipated.

Describe Area Affected and Cleanup Action Taken.*

See above explanation

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:	OIL CONSERVATION DIVISION	
Printed Name: Pam Inskeep	Approved by District Supervisor:	
Title: Regulatory Administrator	Approval Date:	Expiration Date:
Date: 2/01/2017 Phone: (432) 682-3753	Conditions of Approval:	Attached ☐

* Attach Additional Sheets If Necessary

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

BTA Oil Producers
CLAY TIPTON
103 South Pecos
Midland TX, 79701
Fax To: (432) 683-0312

Received:	04/11/2017	Sampling Date:	04/11/2017
Reported:	04/11/2017	Sampling Type:	Soil
Project Name:	ALINE ~~ALPINE~~ BATTERY	Sampling Condition:	Cool & Intact
Project Number:	OVERSPRAY	Sample Received By:	Tamara Oldaker
Project Location:	LEA COUNTY NM		

Sample ID: BATTERY OVERSPRAY (H700954-01)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/11/2017	ND	1.94	97.1	2.00	1.64	
Toluene*	**0.101**	0.050	04/11/2017	ND	1.81	90.6	2.00	1.95	
Ethylbenzene*	<0.050	0.050	04/11/2017	ND	1.81	90.3	2.00	1.70	
Total Xylenes*	<0.150	0.150	04/11/2017	ND	5.12	85.3	6.00	1.65	
Total BTEX	<0.300	0.300	04/11/2017	ND					

Surrogate: 4-Bromofluorobenzene (PID *98.2 %* *72-148*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**48.0**	16.0	04/11/2017	ND	448	112	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	04/11/2017	ND	194	96.8	200	2.14	
DRO >C10-C28	**47.1**	10.0	04/11/2017	ND	200	100	200	3.91	

Surrogate: 1-Chlorooctane *78.1 %* *28.3-164*

Surrogate: 1-Chlorooctadecane *86.6 %* *34.7-157*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name:	BTA Oil	**BILL TO**	
Project Manager:	Clay Tipton	P.O. #:	
Address:	104 S. Pecos	Company:	
City:	Midland	State: TX Zip: 79701	Attn:
Phone #:	575-369-5134	Fax #:	Address:
Project #:		Project Owner:	City:
Project Name:	Aline Batt. Overspray		State: Zip:
Project Location:	Lea County		Phone #:
Sampler Name:	Clay Tipton		Fax #:

FOR LAB USE ONLY	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	ANALYSIS REQUEST: BTEX	TPH	Cl
Lab I.D.																	
H700954																	
1	Batt. Overspray		1			✓							4-11	9:00	✓	✓	✓

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: Clay Tipton	Date: 4-11 Time: 10:00	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Relinquished By:	Date: 4-11-12 Time: 10:00	Received By: Tamara Oldaker	Fax Result: ☐ Yes ☐ No Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No	CHECKED BY: (Initials) T.O. #75	REMARKS: Rush!!

2.0°C

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

From: Yu, Olivia, EMNRD
To: Pam Inskeep
Subject: RE: REPLY: BTA Oil Producers - Release notice and C141 Aline 9012 JV-P #2 30-025-42771
Date: Monday, April 24, 2017 4:15:00 PM

Ms. Inskeep:
Yes, a final C141 can be submitted.
Thanks,
Olivia

From: Pam Inskeep [mailto:Pinskeep@btaoil.com]
Sent: Monday, April 24, 2017 3:40 PM
To: Yu, Olivia, EMNRD
Subject: REPLY: BTA Oil Producers - Release notice and C141 Aline 9012 JV-P #2 30-025-42771
Good afternoon, Olivia.
Attached is an analytical report from Cardinal Labs for the overspray area.
After your review, please advise as to whether I may submit a final C-141.
Give a shout with any questions.
Thanks,
Pam

From: Yu, Olivia, EMNRD [mailto:Olivia.Yu@state.nm.us]
Sent: Monday, April 24, 2017 4:25 PM
To: Pam Inskeep <Pinskeep@btaoil.com>
Subject: RE: BTA Oil Producers - Release notice and C141 Aline 9012 JV-P #2 30-025-42771
Ms. Inskeep:
I am circling back to this. Any updates? NMOCD still is requesting a confirmatory sample in the affected pasture area.
Thanks,
Olivia

From: Pam Inskeep [mailto:Pinskeep@btaoil.com]
Sent: Thursday, April 6, 2017 10:32 AM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Subject: RE: BTA Oil Producers - Release notice and C141 Aline 9012 JV-P #2 30-025-42771
I will check with our operations manager and field personnel and get back to you.
Thanks,
Pam

From: Yu, Olivia, EMNRD [mailto:Olivia.Yu@state.nm.us]
Sent: Thursday, April 06, 2017 11:30 AM
To: Pam Inskeep <Pinskeep@btaoil.com>
Cc: Oberding, Tomas, EMNRD <Tomas.Oberding@state.nm.us>
Subject: RE: BTA Oil Producers - Release notice and C141 Aline 9012 JV-P #2 30-025-42771
Good morning Ms. Inskeep:
I am following up on the status of the remediation for the pasture overspray from this release. NMOCD request that a surface soil sample in the affected area be collected and sent to an accredited laboratory for Benzene, BTEX, TPH, and chloride tests.
Thanks,
Olivia Yu

Environmental Specialist
NMOCD, District I
Olivia.yu@state.nm.us
575-393-6161 x113

From: Pam Inskeep [mailto:Pinskeep@btaoil.com]
Sent: Wednesday, March 1, 2017 4:20 PM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Cc: Oberding, Tomas, EMNRD <Tomas.Oberding@state.nm.us>
Subject: RE: BTA Oil Producers - Release notice and C141 Aline 9012 JV-P #2 30-025-42771

My mistake. It should read Unit Letter -A-.
I am checking on the mist remediation and will get back to you.
Thanks,
Pam

From: Yu, Olivia, EMNRD [mailto:Olivia.Yu@state.nm.us]
Sent: Wednesday, February 15, 2017 2:05 PM
To: Pam Inskeep <Pinskeep@btaoil.com>
Cc: Oberding, Tomas, EMNRD <Tomas.Oberding@state.nm.us>
Subject: RE: BTA Oil Producers - Release notice and C141 Aline 9012 JV-P #2 30-025-42771

Dear Ms. Inskeep:
Please see the attachment for your records. Please confirm that the Unit Letter is correct. NMOCD request affirmation that the mist of oil over the pasture has been remediated.
Thanks,
Olivia Yu
Environmental Specialist
NMOCD, District I
Olivia.yu@state.nm.us
575-393-6161 x113

From: Pam Inskeep [mailto:Pinskeep@btaoil.com]
Sent: Wednesday, February 1, 2017 1:16 PM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Subject: BTA Oil Producers - Release notice and C141 Aline 9012 JV-P #2 30-025-42771

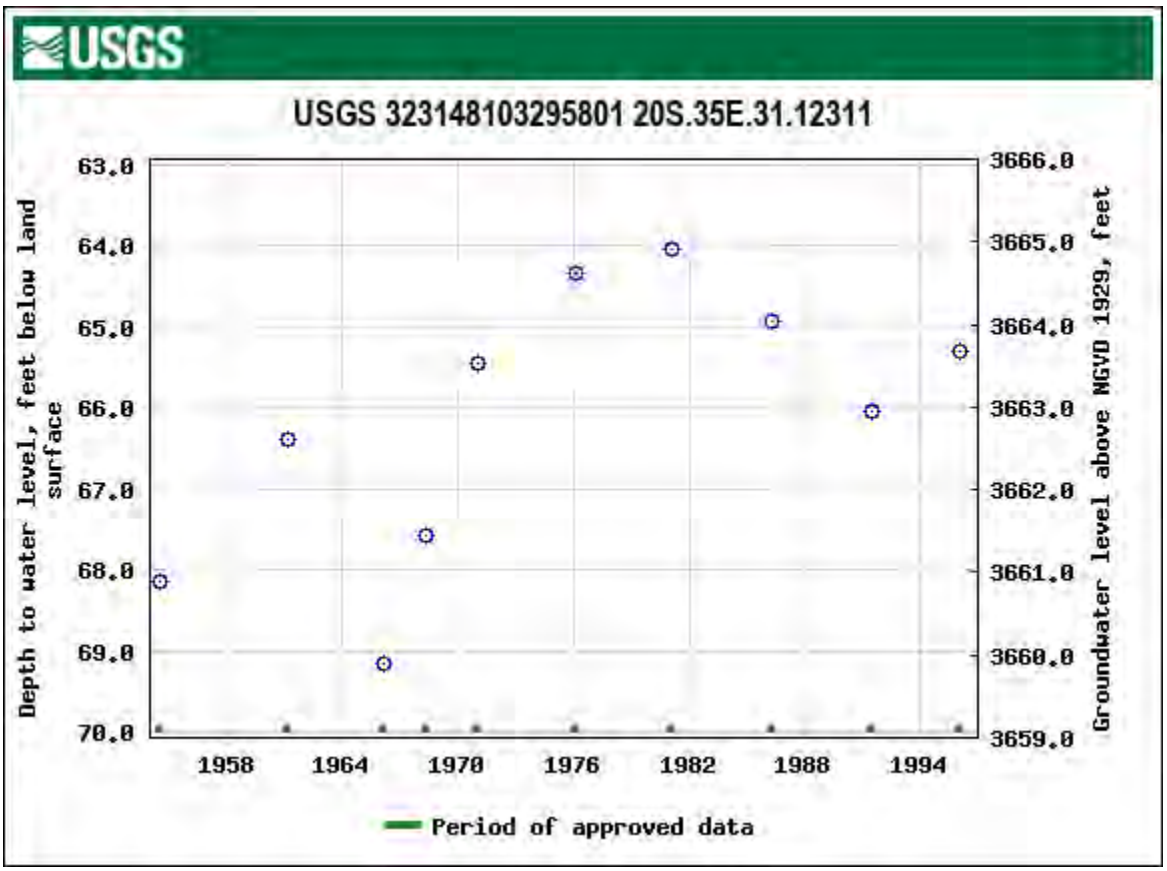
Good afternoon, Olivia.
Attached, please find the initial C141 for the referenced. I also left a voice message on your office number 575-393-6161 x 113.
We had an estimated 4 BO release at this location. The heater/treater malfunctioned and sent fluid to the flare. This resulted in a spray of a fine mist of oil onto the location. A small amount of the mist drifted a few feet into the pasture directly adjacent to the battery location.
We recovered all fluid possible (approximately 2 bbls). No further remediation is

anticipated.
Please give a shout, should you have any questions.
Thanks,

Pam

Pam Inskeep
Regulatory Administrator
BTA Oil Producers LLC
104 S. Pecos
Midland, TX 79701
432-682-3753
pinskeep@btaoil.com

APPENDIX B – Closure Criteria Research Documentation

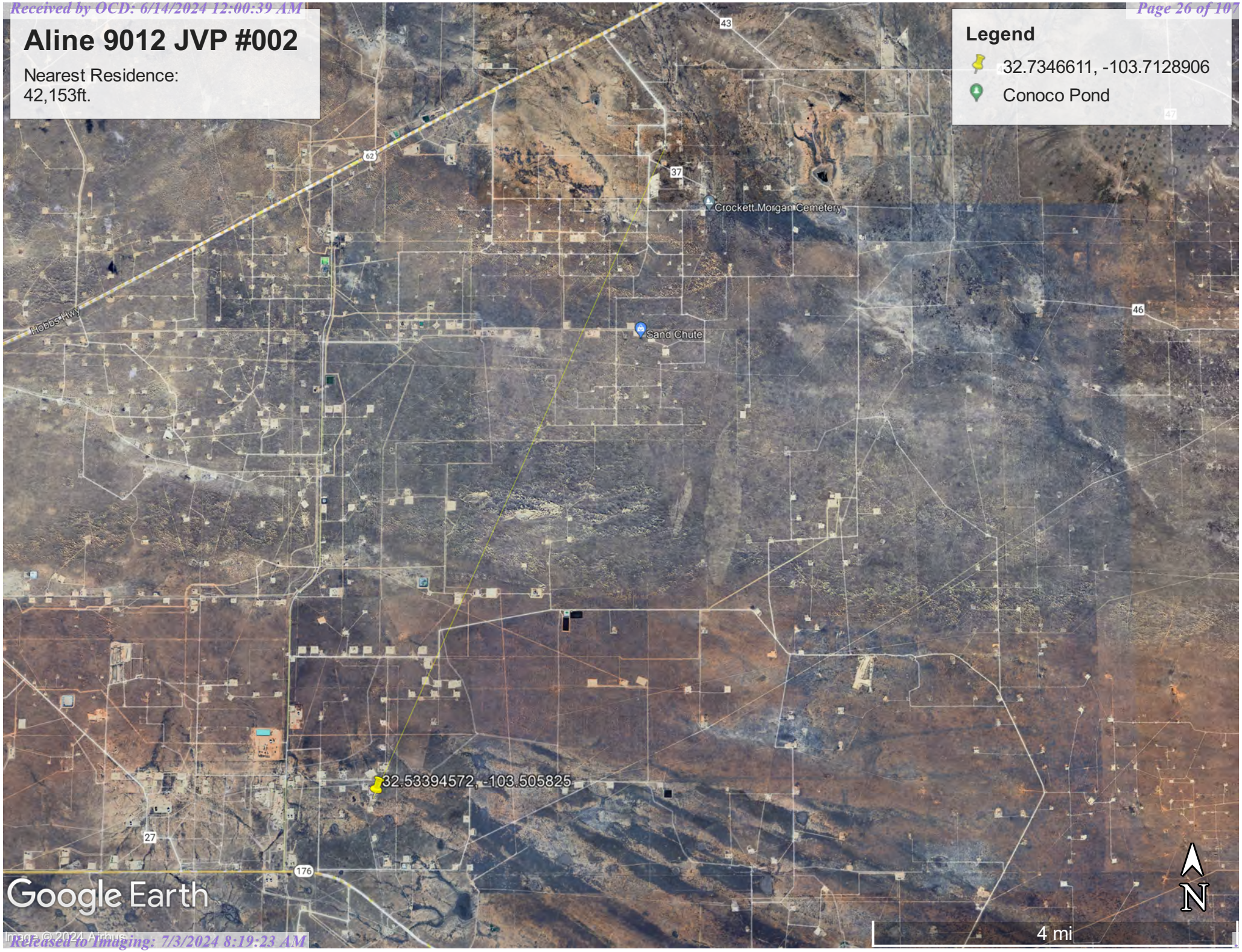

USGS
USGS 323148103295801 20S.35E.31.12311
Depth to water level, feet below land surface
63.0
64.0
65.0
66.0
67.0
68.0
69.0
70.0
Groundwater level above NGVD 1929, feet
3666.0
3665.0
3664.0
3663.0
3662.0
3661.0
3660.0
3659.0
1958
1964
1970
1976
1982
1988
1994
Period of approved data

Aline 9012 JVP #002

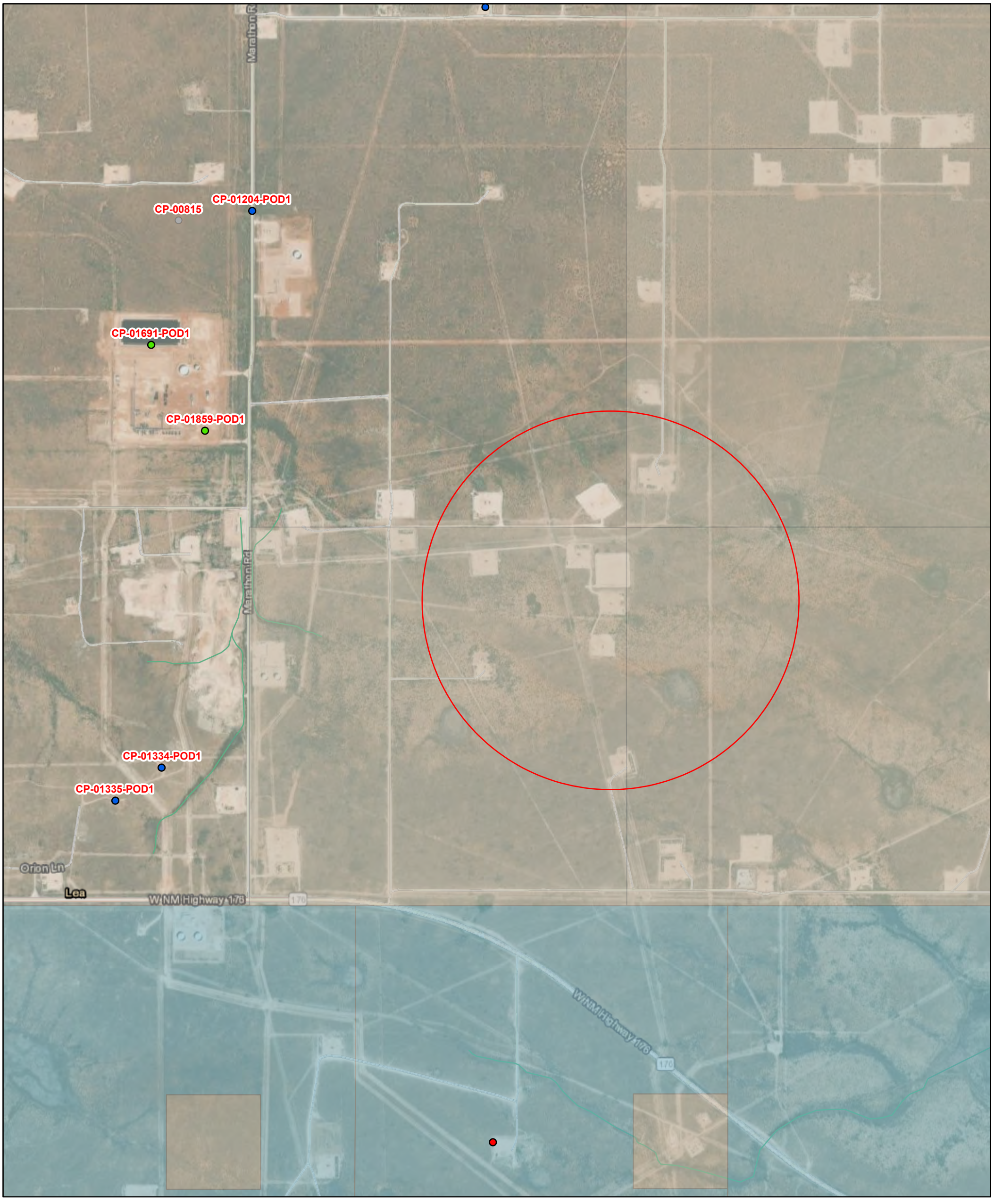
Nearest Residence:
42,153ft.

Legend

- 32.7346611, -103.7128906
- Conoco Pond



Aline 9012 JVP #002 0.5-Mile Radius



6/12/2024, 3:45:43 PM

GIS WATERS PODs
- Active
- Pending
- Plugged

OSE District Boundary

Water Right Regulations
- Closure Area
- Artesian Planning Area

New Mexico State Trust Lands
- Subsurface Estate

Both Estates

NHD Flowlines
- Artificial Path
- Stream River

1:18,056

0 0.17 0.35 0.7 mi

0 0.28 0.55 1.1 km

Esri, HERE, iPC, Esri, HERE, Garmin, iPC, Maxar

Online web user

This is an unofficial map from the OSE's online application.

New Mexico Office of the State Engineer

Water Right Summary

get image list

WR File Number: CP 01859 **Subbasin:** CP **Cross Reference:** -

Primary Purpose: SAN 72-12-1 SANITARY IN CONJUNCTION WITH A COMMERCIAL USE

Primary Status: PMT PERMIT

Total Acres: **Subfile:** - **Header:** -

Total Diversion: 1 **Cause/Case:** -

Owner: 3 BEAR DELAWARE OPERATING NM

Contact: DOUGLAS SWANSON

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	682168	72121	2020-11-23	PMT	APR	CP 01859 POD1	T			1

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Other Location Desc
CP 01859 POD1	20D69		2	4		26	20S	24E	638569	3601311	

New Mexico Office of the State Engineer
Transaction Summary

72121 All Applications Under Statute 72-12-1

Transaction Number: 682168 **Transaction Desc:** CP 01859 POD1 **File Date:** 11/18/2020

Primary Status: PMT Permit
Secondary Status: APR Approved
Person Assigned: *******
Applicant: 3 BEAR DELAWARE OPERATING NM
Contact: DOUGLAS SWANSON

Events

	Date	Type	Description	Comment	Processed By
get images	11/18/2020	APP	Application Received	*	*******
	11/23/2020	FIN	Final Action on application		*******
	11/23/2020	WAP	General Approval Letter		*******
	11/24/2020	QAT	Quality Assurance Completed	DATA	*******
	12/22/2020	QAT	Quality Assurance Completed	IMAGE	*******
	12/29/2020	ARW	WRAB Main File Rm Arch Sect	CP 01859 Archived	*******

Change To:

WR File Nbr	Acres	Diversion	Consumptive	Purpose of Use
CP 01859		1		SAN 72-12-1 SANITARY IN CONJUNCTION WITH A COMMERCIAL USE
**Point of Diversion				
CP 01859 POD1		638569	3601311	

Remarks

"THE WELL WOULD SERVICE A PLANNED SMALL OFFICE BUILDING OF APROXIMATELY 10 OFFICES AND 2 BATHROOMS (4 TOILETS)

Conditions

5B The well owner shall cause to be installed, a totalizing meter before the first branch of the discharge line from the well and the installation shall be acceptable to the State Engineer; the Engineer shall be advised of the make, model, serial number, date of installation, and initial reading of the meter prior to appropriation of water; pumping records shall be submitted to the District Supervisor on or before the 10th of Jan., April, July and Oct. of each year for the 3 preceding calendar months.

10 Total diversion from all wells under this permit number shall not exceed 1 acre-feet per annum.

13 This permit authorizes the diversion of water for drinking and sanitary uses that are incidental to the operations of a governmental, commercial, or non-profit facility. The total diversion of water under this permit shall not exceed 1 acre-feet per year. Water may not be used under this type of permit for any commercial use such as the manufacture of a product, car wash, water bottling, concrete batching, or the irrigation of crops grown for commercial

Conditions

sale.

Action of the State Engineer

**** See Image For Any Additional Conditions of Approval ****

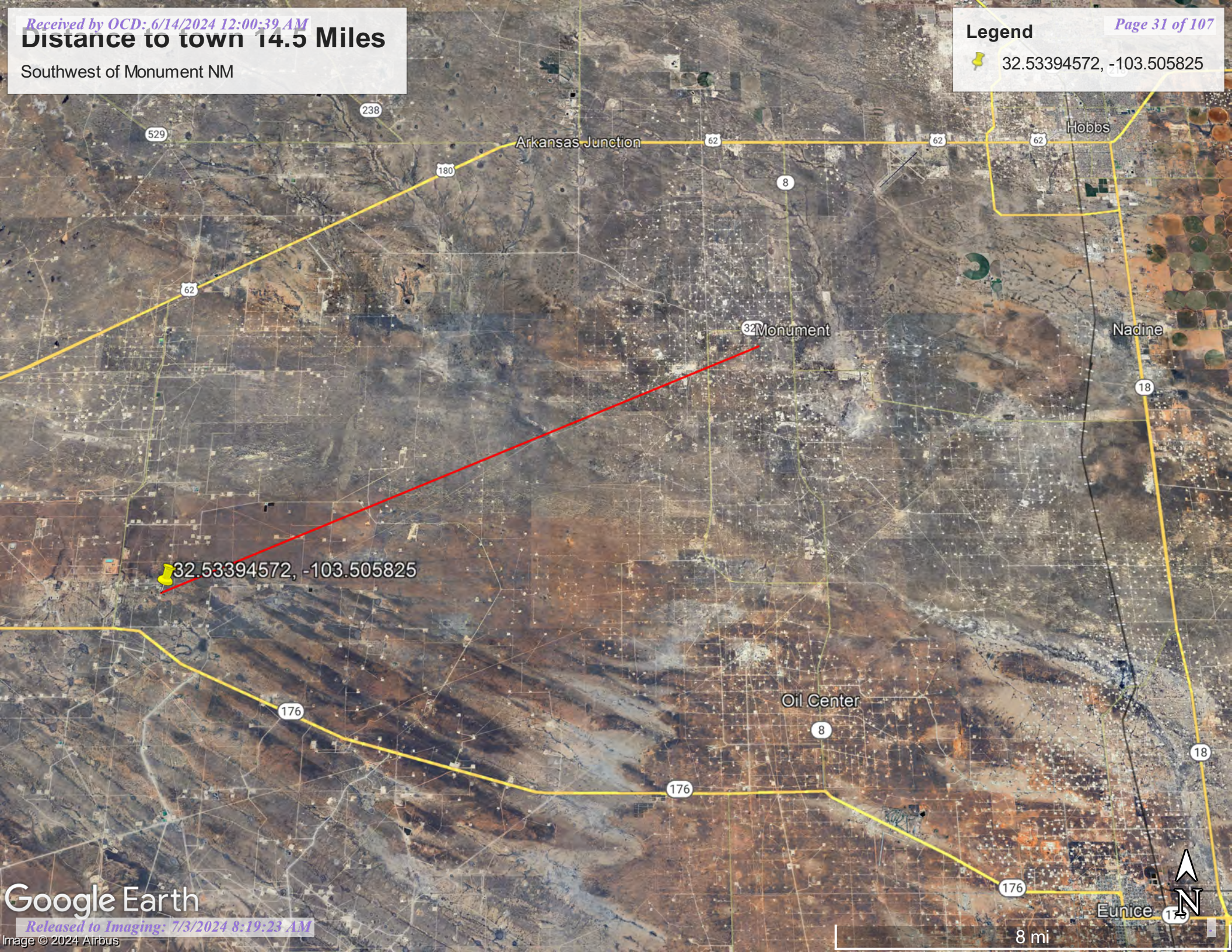
Approval Code: A - Approved
Action Date: 11/23/2020
Log Due Date: 11/23/2021
State Engineer: John R. D Antonio,

Distance to town 14.5 Miles

Southwest of Monument NM

Legend

32.53394572, -103.505825



U.S. Fish and Wildlife Service
National Wetlands Inventory

Aline Wetland 1,369ft.

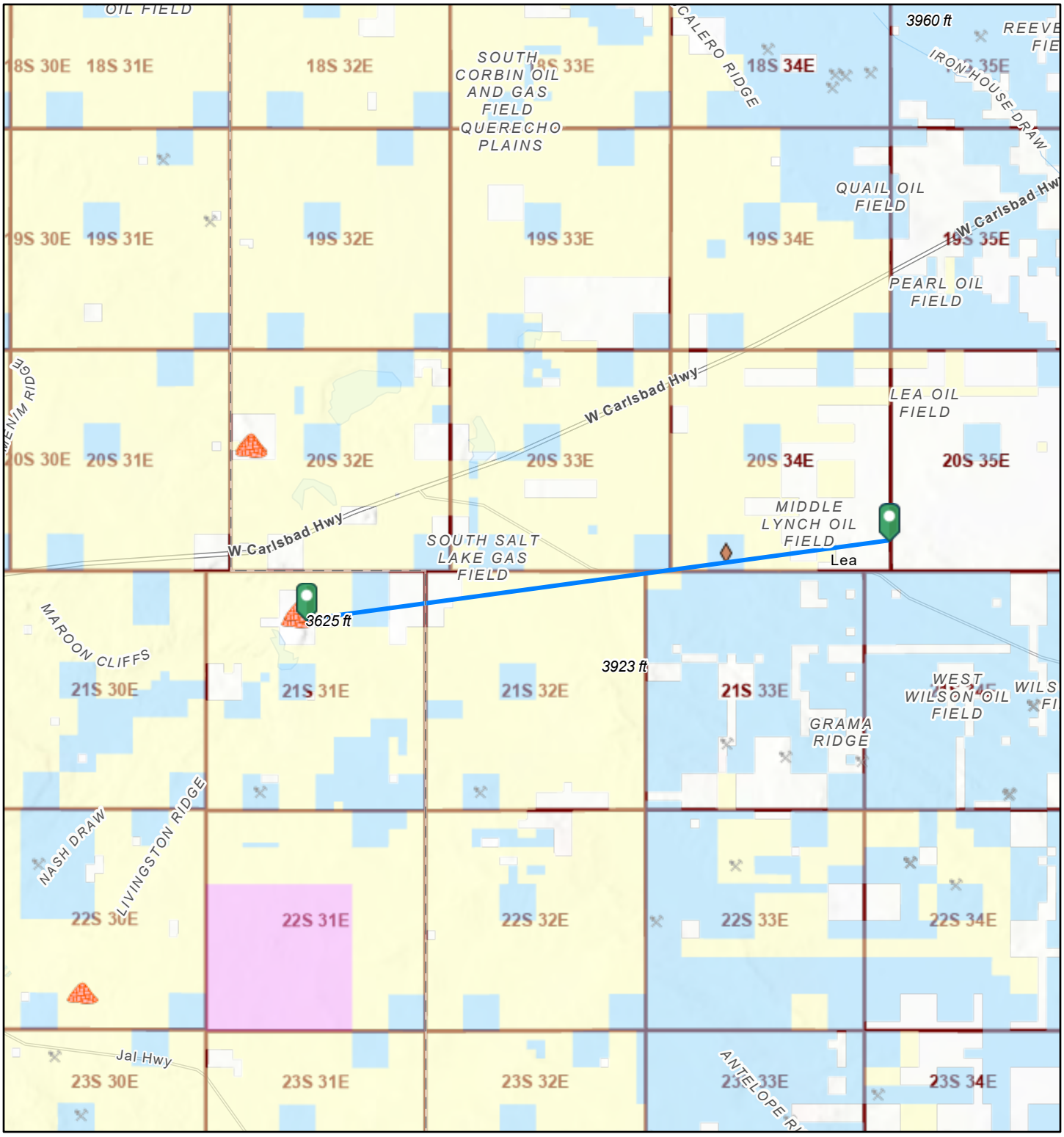
May 28, 2024

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

Active Mines in New Mexico



5/28/2024, 2:31:07 PM

1:288,895

0 2 4 8 mi

0 3.25 6.5 13 km

Registered Mines

- Aggregate, Stone etc.
- Aggregate, Stone etc.
- Aggregate, Stone etc.
- Industrial Minerals (Other)
- Potash

Land Ownership

- BLM
- DOE
- P
- S
- PLSS Townships

Texas Parks & Wildlife, CONANP, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, USFWS, U.S. BLM, Esri, NASA, NGA, USGS, BLM

EMNRD MMD GIS Coordinator

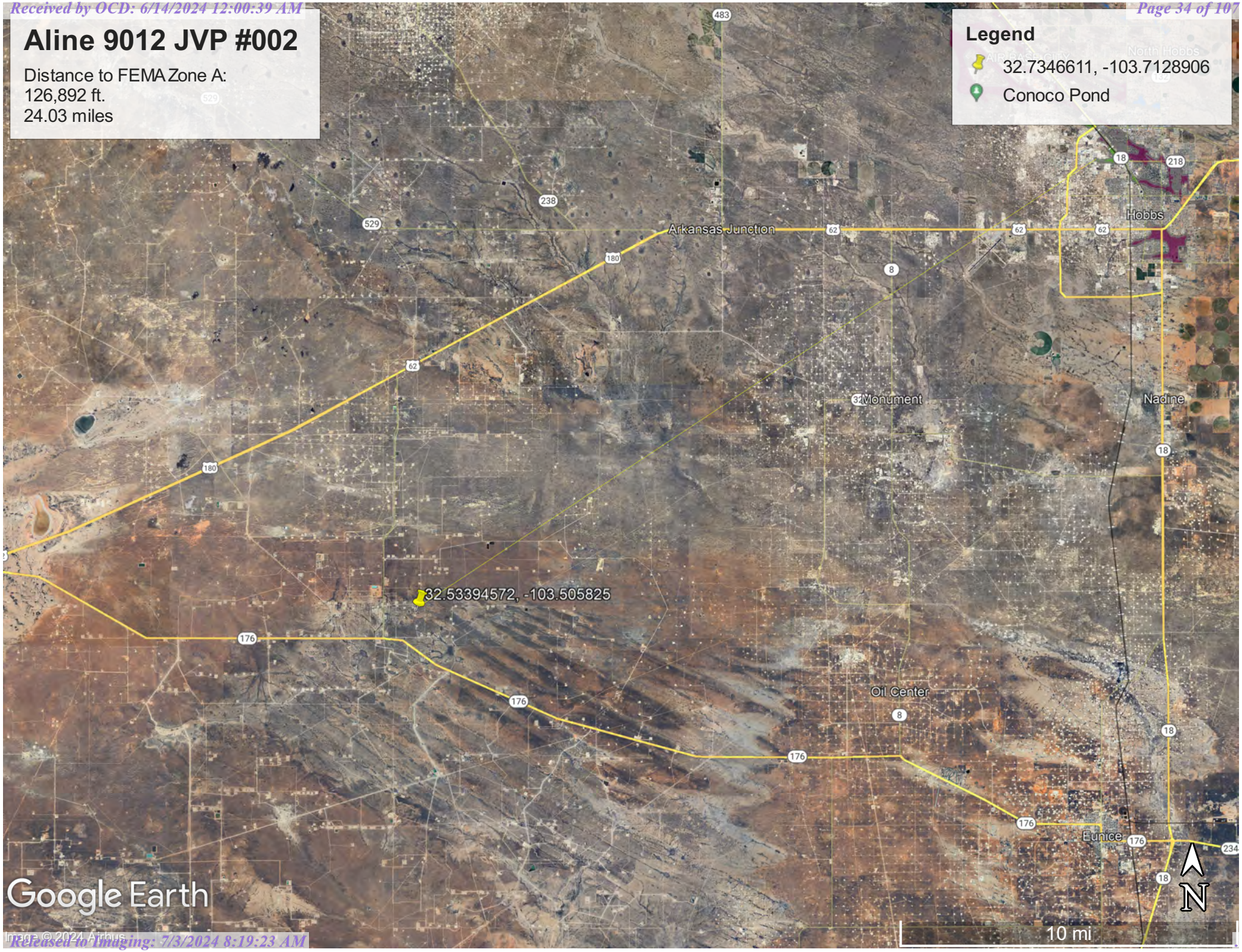
New Mexico Energy, Minerals and Natural Resources Department (http://nm-emnrd.maps.arcgis.com/apps/webappviewer/index.html?id=1b5e577974664d689b47790897ca2795)

Aline 9012 JVP #002

Distance to FEMA Zone A:
126,892 ft.
24.03 miles

Legend

32.7346611, -103.7128906
Conoco Pond



National Flood Hazard Layer FIRMette

FEMA

103°30'40"W 32°32'17"N

103°30'2"W 32°31'47"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 5/28/2024 at 4:45 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Lea County, New Mexico

May 28, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Lea County, New Mexico
Survey Area Data: Version 20, Sep 6, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 7, 2020—May 12, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
KO	Kimbrough gravelly loam, dry, 0 to 3 percent slopes	8.8	80.4%
SE	Simona fine sandy loam, 0 to 3 percent slopes	2.2	19.6%
Totals for Area of Interest		**11.0**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Lea County, New Mexico

KO—Kimbrough gravelly loam, dry, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tw43
Elevation: 2,500 to 4,800 feet
Mean annual precipitation: 14 to 16 inches
Mean annual air temperature: 57 to 63 degrees F
Frost-free period: 180 to 220 days
Farmland classification: Not prime farmland

Map Unit Composition

Kimbrough, dry, and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kimbrough, Dry

Setting

Landform: Playa rims, plains
Down-slope shape: Convex, linear
Across-slope shape: Concave, linear
Parent material: Loamy eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 3 inches: gravelly loam
Bw - 3 to 10 inches: loam
Bkkm1 - 10 to 16 inches: cemented material
Bkkm2 - 16 to 80 inches: cemented material

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 4 to 18 inches to petrocalcic
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.01 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 95 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R077DY049TX - Very Shallow 12-17" PZ
Hydric soil rating: No

Minor Components

Eunice

Percent of map unit: 10 percent
Landform: Plains
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R077DY049TX - Very Shallow 12-17" PZ
Hydric soil rating: No

Spraberry

Percent of map unit: 6 percent
Landform: Playa rims, plains
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: R077DY049TX - Very Shallow 12-17" PZ
Hydric soil rating: No

Kenhill

Percent of map unit: 4 percent
Landform: Plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R077DY038TX - Clay Loam 12-17" PZ
Hydric soil rating: No

SE—Simona fine sandy loam, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: dmr2
Elevation: 3,000 to 4,200 feet
Mean annual precipitation: 10 to 15 inches
Mean annual air temperature: 58 to 62 degrees F
Frost-free period: 190 to 205 days
Farmland classification: Not prime farmland

Map Unit Composition

Simona and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Simona

Setting

Landform: Plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 8 inches: fine sandy loam
Bk - 8 to 16 inches: gravelly fine sandy loam
Bkm - 16 to 26 inches: cemented material

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 7 to 20 inches to petrocalcic
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): 6s
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R070BD002NM - Shallow Sandy
Hydric soil rating: No

Minor Components

Kimbrough

Percent of map unit: 8 percent
Ecological site: R077CY037TX - Very Shallow 16-21" PZ
Hydric soil rating: No

Lea

Percent of map unit: 7 percent
Ecological site: R077CY028TX - Limy Upland 16-21" PZ
Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

USDA Natural Resources Conservation Service

Ecological site R077DY049TX
Very Shallow 12-17" PZ

Last updated: 9/11/2023
Accessed: 05/28/2024

General information

Provisional. A provisional ecological site description has undergone quality control and quality assurance review. It contains a working state and transition model and enough information to identify the ecological site.

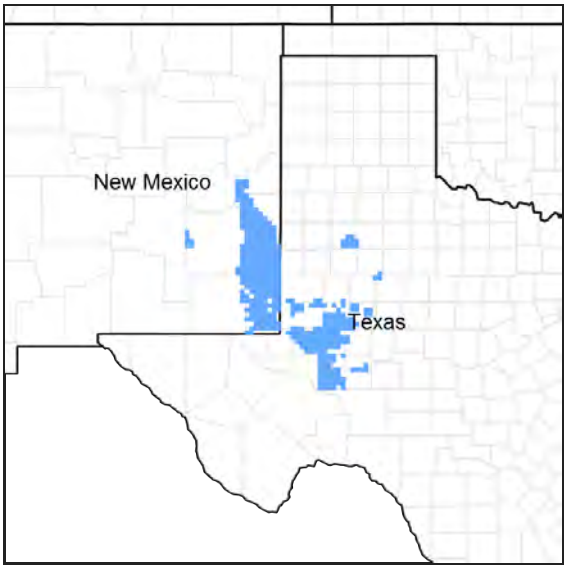


Figure 1. Mapped extent

Areas shown in blue indicate the maximum mapped extent of this ecological site. Other ecological sites likely occur within the highlighted areas. It is also possible for this ecological site to occur outside of highlighted areas if detailed soil survey has not been completed or recently updated.

MLRA notes

Major Land Resource Area (MLRA): 077D–Southern High Plains, Southwestern Part

This MLRA 77D is characterized by nearly level to gently undulating plains with scattered playa depressions. Soil temperature regime is thermic and soil moisture regime is aridic bordering on ustic. Sandy and loamy soils are generally well drained and range from shallow to deep and medium- to coarse-textured. Native vegetation is short- to midgrasses and sandy sites support tallgrasses with sand shin oak and mesquite. Current land use is mainly rangeland, although irrigated cropland is expanding.

Classification relationships

This ecological site is correlated to soil components at the Major Land Resource Area (MLRA) level which is further described in USDA Ag Handbook 296.

Ecological site concept

These sites occur on very shallow soils on uplands. The reference vegetation consists of shortgrasses with some midgrasses and forbs. Woody species are rarely present in the reference plant community. Abusive grazing practices may lead to a decrease in palatable plants and a shift in the plant community. Woody species may increase in the absence of periodic fire.

Associated sites

R077DY042TX	**Limy Upland 12-17" PZ** Very shallow sites can be found adjacent to Limy Upland sites, MLRA 77D. The Limy Upland sites will occur as gently undulating soils that occur on broad upland plains. Midgrasses dominate but there is a good mixture of shortgrasses on this site. Production is higher on the Limy Upland sites.
R077DY047TX	**Sandy Loam 12-17" PZ** Sandy Loam sites, MLRA 77D, can be found adjacent to Very Shallow sites as deeper soils on nearly level plains. Midgrasses dominate but some tallgrasses and shortgrasses can occur on this site. Production is higher on Sandy Loam sites.
R077DY048TX	**Shallow 12-17" PZ** Shallow sites, MLRA 77D, can be found adjacent to Very Shallow sites as slightly deeper soils on nearly level plains. Midgrasses dominate but a good mixtrue of shortgrasses occurs on this site. Production is similar between Shallow and Very Shallow sites.
R077DY046TX	**Sandy 12-17" PZ** Sandy sites, MLRA 77D, can be found adjacent to Very Shallow sites as deeper soils on nearly level plains. Midgrasses dominate but there is a good mixture of tallgrasses on this site. Production is similar on the Sandy sites.

Similar sites

R077DY048TX	**Shallow 12-17" PZ** Shallow sites, MLRA 77D, will have slightly deeper soils on nearly level plains. Shallow sites have similar vegetation with slightly higher production potential.
R077CY037TX	**Very Shallow 16-21" PZ** Very Shallow sites, MLRA 77C, have similar forage plant communities with higher production potential due to higher annual precipitation (16 - 21 inches).
R077EY068TX	**Very Shallow 16-24" PZ** Very Shallow sites, MLRA 77E, have similar forage plant communities with higher production potential due to higher annual precipitation (16 - 24 inches).

Table 1. Dominant plant species

Tree	Not specified
Shrub	(1) *Ephedra* (2) *Acacia greggii*
Herbaceous	(1) *Bouteloua eriopoda* (2) *Bouteloua gracilis*

Physiographic features

Soils correlated in the MLRA 77D Very Shallow ecological site are very shallow to shallow to a petrocalcic horizon. They were formed in moderately fine textured eolian sediments of the Blackwater Draw Formation of Pleistocene age. These soils are typically on gently sloping plains, narrow ridges, and side slopes along draws. Slope ranges from 0 to 3 percent.

Landforms include Plain, Ridge, and Playa rims.

Table 2. Representative physiographic features

Landforms	(1) Plateau > Plain (2) Plateau > Playa rim (3) Plateau > Ridge
Runoff class	Medium to high
Flooding frequency	None

Ponding frequency	None
Elevation	2,500–4,600 ft
Slope	0–3%
Water table depth	80 in
Aspect	W, NW, N, NE, E, SE, S, SW

Climatic features

Continental Steppe climate is prevalent in MLRA 77D. This climate type is typical of interiors of continents and is characterized by large variations in the magnitude of ranges in daily temperature extremes, low relative humidity, and irregularly spaced rainfall of moderate amounts. This climate regime is also known for being semi-arid with mild winters.

Droughts occur with monotonous frequency although there will be years having excessive precipitation resulting in large accumulations of water that little benefit is obtained from the rainfall events. If good rains occur in the spring and summer months, annual production will be favorable even if the remainder of the year is not favorable. Most of the annual precipitation occurs as a result from spring and early summer thunderstorms. Due to the fact that the area is mainly flat, local flooding may occur but only of short duration. There is very little precipitation and infrequent snowfall amounts in the winter.

During the late winter and early spring months, dust storms occur very frequently. The flat plains of the area contribute very little resistance to the strong winds. Dust in many of these storms remains in the air for several days after the storms have passed.

Daytime temperatures are warm in the summer but there is a large diurnal range and most nights are comfortable. In summers, the normal daily maximum temperatures are in the low to mid 90s and the normal minimum temperatures are in the upper 60s and low 70s. Even though the temperatures may be high, the low humidity and high evaporation rates create a cooling effect during the nighttime hours. Fall months exhibit extremely variable weather. Winters are mild and are characterized by frequent cold fronts accompanied by strong, gusty, northerly winds. Most of the cold fronts are dry as they pass through the area.

Table 3. Representative climatic features

Frost-free period (characteristic range)	154-191 days
Freeze-free period (characteristic range)	181-194 days
Precipitation total (characteristic range)	15-17 in
Frost-free period (actual range)	147-195 days
Freeze-free period (actual range)	171-213 days
Precipitation total (actual range)	15-17 in
Frost-free period (average)	167 days
Freeze-free period (average)	190 days
Precipitation total (average)	16 in

Climate stations used

- (1) MELROSE [USC00295617], Melrose, NM
- (2) ELIDA [USC00292854], Elida, NM
- (3) CROSSROADS 2 [USC00292207], Crossroads, NM
- (4) CAPROCK [USC00291445], Caprock, NM
- (5) TATUM [USC00298713], Tatum, NM
- (6) HOBBS 13W [USC00294030], Lovington, NM
- (7) ANDREWS [USC00410248], Andrews, TX

- (8) ODESSA SCHLEMEYER FLD [USW00003031], Odessa, TX
- (9) K-BAR RCH [USC00414710], Odessa, TX

Influencing water features

Water features are not an influencing factor in this site.

Wetland description

None.

Soil features

The soils of this site are very shallow, well drained, calcareous, gravelly soils. Permeability is moderate and runoff is low to medium. Parent material is a thin mantle of medium to moderately coarse textured eolian sediments over an indurated layer.

Major Soil Taxonomic Units correlated to this site include: Eunice soils, Kimbrough soils, Simona soils and Spraberry soils.

Table 4. Representative soil features

Parent material	(1) Eolian deposits–igneous, metamorphic and sedimentary rock
Surface texture	(1) Loam (2) Gravelly loam (3) Fine sandy loam (4) Loamy fine sand
Family particle size	(1) Loamy
Drainage class	Well drained
Permeability class	Moderate to rapid
Depth to restrictive layer	4–20 in
Soil depth	4–20 in
Surface fragment cover <=3"	0–10%
Surface fragment cover >3"	0–10%
Available water capacity (0-20in)	0.5–2 in
Calcium carbonate equivalent (0-20in)	0–60%
Electrical conductivity (0-20in)	0–1 mmhos/cm
Sodium adsorption ratio (0-20in)	0–1
Soil reaction (1:1 water) (0-20in)	6.6–8.4
Subsurface fragment volume <=3" (0-20in)	0–60%
Subsurface fragment volume >3" (0-20in)	0–3%

Ecological dynamics

The Reference Plant Community of the Very Shallow Ecological Site is a Shortgrass/Midgrass Community (1.1). Few if any tallgrass species will be found. Grass species account for 85 percent of the total site production. A wide

variety of forbs are produced on this site producing 15 percent of the total annual production. Only trace amounts of woody shrubs will be found. This site occupies flat to moderately sloping upland areas. Slopes typically range from 1 to 12 percent. These are shallow to very shallow loam to fine sandy loam soils with a depth of 4 to 20 inches that are underlain by indurated caliche or soft caliche.

The dominant shortgrass species are black grama (*Bouteloua eriopoda*) and blue grama (*Bouteloua gracilis*), with lesser amounts of buffalograss (*Bouteloua dactyloides*), Wright threeawn (Aristida wrightii), hairy grama (*Bouteloua hirsuta*), and fall witchgrass (*Digitaria cognata*). The dominant midgrass species are sideoats grama (*Bouteloua curtipendula*), little bluestem (*Schizachyrium scoparium*), plains bristlegrass (*Setaria macrostachya*), Arizona cottontop (*Digitaria californica*), tobosagrass (*Pleuraphis mutica*), slim tridens (*Tridens muticus*), and lesser amounts of sand dropseed (*Sporobolus cryptandrus*) and Reverchon bristlegrass (*Setaria reverchonii*). A good variety of forbs exist but the amount varies greatly from year to year depending on moisture. The more commonly found forbs are dotted gayfeather (*Liatris punctata*), white prairie clover (*Dalea albiflora*), gaura spp. (Gaura spp.), bush sunflower (*Simsia calva*), orange zexmania (Zexmania hispida), trailing ratany (*Krameria lanceolata*), Oenothera spp. (Oenothera spp.), and rock daisy (Perityle spp.). The few shrubs that may be found on this site were feather dalea (Dalea Formosa), catclaw acacia (*Acacia greggii*), and vine ephedra (*Ephedra antisyphilitica*).

Fire plays a role in the ecology of this site as well as most other high plains sites. The general role of fire is to sustain the natural grassland and suppress shrubby species. Fire has helped to keep a balance between the grasses, forbs and shrubs. However, in the shortgrass region, fire is probably secondary to climate in promoting the historic vegetative state. A drier climate (<20 inches annual precipitation) creates a situation where the subsoil is dry more often than it is wet. Plant roots grow in response to moisture and this dryer climate favors shortgrasses with fibrous root systems or short rhizomatous grasses. Annual forbs are stimulated by fire and diversity is generally increased. Heavy grazing after a fire can have a negative effect if conditions are dry and remain so for an extended period.

Periodic grazing and trampling by migrating herds of bison and elk as well as resident herds of pronghorn antelope occurred during drought periods. Bison moved about in large herds over the region somewhat regulated by water sources and fire frequency. However, long rest periods followed once the large herds of bison moved out of the area, allowing the resilient grassland to re-establish and maintain its structure.

Variations in climatic factors, especially the amount and timing of precipitation, greatly influence the productivity of ecological sites and are largely responsible for the fluctuations in the amount of vegetative growth from one season to the next. It is not unusual for fluctuations of greater than 50 percent to occur from one year to another. These types of climatic variation are part of the overall environment in which the reference plant community developed. However, it needs to be pointed out that long-term drought (4 to 6 years of rainfall, 50 percent below the mean) can act in concert with other forces to affect changes in plant communities. For instance, extended drought weakens plants and makes them more susceptible to the effects of overgrazing. Drought conditions coupled with fire can be damaging and need long periods of time to fully recover. Extremely dry summers followed by wet winters can favor cool-season annual grasses at the expense of perennial warm-season species. A well-adapted, healthy community could better withstand such rigors of drought. However, even the reference community can experience damage that would result in some departure from the former stable state. Usually, the departure would be temporary.

When domestic livestock were brought to the plains in the 1870’s, it was largely an open range situation. By 1890, however, most of the area had been fenced and livestock were confined to these areas continually. Not understanding the limits of rangeland productivity, European settlers almost universally overstocked the area with domesticated livestock. As overgrazing occurred on this site, there was a reduction of the less grazing resistant midgrass species, a decline in mulch and organic matter, and consequently a reduction in intensity and frequency of fires. The shift in plant cover to less palatable shortgrass species and the decline in soil cover, favors woody plant encroachment.

With abusive grazing, no fire, no brush management and/or pest management this site will transition to the Shortgrass/Shrub Community (1.2). As livestock and wildlife numbers increase and grazing use exceeds a plants ability to sustain defoliation, the more palatable and generally more productive species decline in stature, productivity and density. The tendency of this site is to become a shortgrass dominant site if long-term grazing abuse occurs. This will lead to a decline in sideoats grama, blue grama and other palatable grass species. Black grama, dropseeds and tobosa will increase with an increase of hairy tridens (*Erioneuron pilosum*), and burrograss (*Scleropogon brevifolius*). Catclaw acacia will increase along with an invasion of broom snakeweed (*Gutierrezia*

sarothrae), and mesquite (*Prosopis glandulosa*). The production of vegetation has shifted from mostly herbaceous vegetation to increasing amounts of woody shrubs. Herbaceous vegetation is still the largest production in this state. Nutrient cycling, the water cycle, watershed protection and biological functions have changed somewhat. This state can transition back to reference with good management practices such as prescribed grazing, brush management and pest management. In this state it is unlikely that prescribed burning could be used due to the limited fuel load and poor continuity to carry a fire.

If long-term, abusive grazing continues with no fire or any form of brush and pest management, a major threshold will be crossed to the Shrub/Shortgrass Community (2.1). In this state, mesquite, broom snakeweed and catclaw acacia will dominate the site. The typical shortgrass species will be perennial threeawns, hairy tridens and other invading low quality short grasses. Bare areas will increase with annuals filling the voids.

The loss of herbaceous cover and increased bare soil encourages accelerated erosion. Nutrient cycling, the water cycle, watershed protection and biological functions have been severely reduced.

The plant community is so degraded that it cannot reverse retrogression without extensive energy and management inputs. Prescribed grazing with rest periods during the growing season, re-seeding with adapted native grass species, chemical and/or mechanical brush management, and some form of pest management will be required to return this state back to reference. With the reduced amounts of grass fuel, poor continuity and increased bare soil, prescribed burning will not be an option in this state.

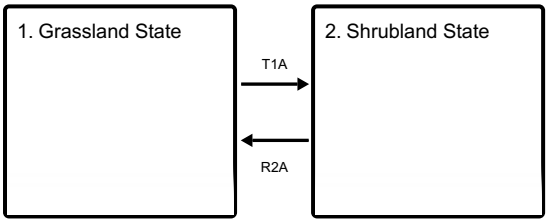
NOTE: Rangeland Health Reference Worksheets have been posted for this site on the Texas NRCS website (www.tx.nrcs.usda.gov) in Section II of the eFOTG under (F) Ecological Site Descriptions.

STATE AND TRANSITIONAL PATHWAYS: (DIAGRAM)

Narrative:
The following diagram suggests some pathways that the vegetation on this site might take. There may be other states not shown on the diagram. This information is intended to show what might happen in a given set of circumstances; it does not mean that this would happen the same way in every instance. Local professional guidance should always be sought before pursuing a treatment scenario.

State and transition model

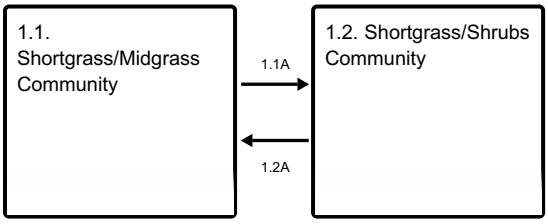
Ecosystem states



T1A - Absence of disturbance and natural regeneration over time, may be coupled with excessive grazing pressure

R2A - Adequate rest from defoliation and removal of woody canopy, followed by reintroduction of historic disturbance regimes

State 1 submodel, plant communities



State 2 submodel, plant communities

2.1. Shrub/Shortgrass Community

State 1
Grassland State

The Reference Plant Community was a Shortgrass/Midgrass Community (1.1). Few if any tallgrass species will be found. Grass species account for 85 percent of the total site production. A wide variety of forbs are produced on this site producing 15 percent of the total annual production and only trace amounts of woody shrubs will be found. With continuous heavy grazing, no fire, no brush management and/or pest management this site will transition to the Shortgrass/Shrub Community (1.2). As livestock and wildlife numbers increase and grazing use exceeds a plants ability to sustain defoliation, the more palatable and generally more productive species decline in stature, productivity and density. The tendency of this site is to become a shortgrass dominant site if long-term grazing abuse occurs. This will lead to a decline in sideoats grama, blue grama and other palatable grass species.

Dominant plant species

- black grama (*Bouteloua eriopoda*), grass
- blue grama (*Bouteloua gracilis*), grass

Community 1.1
Shortgrass/Midgrass Community

Figure 8. 1.1 Shortgrass/Midgrass Community

The Reference Plant Community of the Very Shallow Ecological Site is a Shortgrass/Midgrass Plant Community (1.1). Few if any tallgrass species will be found. Grass species account for 85 percent of the total site production. A wide variety of forbs are produced on this site producing 15 percent of the total annual production. Only trace amounts of woody shrubs will be found. The dominant shortgrass species are black grama and blue grama. Sideoats grama is the primary midgrass species. As overgrazing occurs on this site, there will be a reduction of the less grazing resistant midgrass species, a decline in mulch and organic matter, and consequently a reduction in intensity and frequency of fires. The shift in plant cover to less palatable shortgrass species and the decline in soil cover, favors woody plant encroachment. Proper grazing use, periodic brush and pest management and prescribed burning are required to maintain this community phase.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	285	618	950
Forb	15	32	50
Shrub/Vine	0	0	1
Tree	0	0	0
Microbiotic Crusts	0	0	0
Total	**300**	**650**	**1001**

Figure 10. Plant community growth curve (percent production by month). TX1251, Warm-season bunchgrasses w/ forbs & shrubs. Warm-season bunchgrasses with forbs and shrubs..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	1	3	5	12	16	15	20	18	9	1	0

Community 1.2
Shortgrass/Shrubs Community

Figure 11. 1.2 Shortgrass/Shrubs Community

With continuous heavy grazing, no fire, no brush management and/or pest management this site will transition from to the Shortgrass/Shrub Community (1.2). As livestock and wildlife numbers increase and grazing use exceeds a plants ability to sustain defoliation, the more palatable and generally more productive species decline in stature, productivity and density. The tendency of this site is to become a shortgrass dominant site if long-term grazing abuse occurs. This will lead to a decline in sideoats grama, blue grama and other palatable grass species. Black grama, dropseeds and tobosa will increase with an invasion of hairy tridens, and burrograss. Catclaw acacia will increase along with an invasion of broom snakeweed, and mesquite. The production of vegetation has shifted from mostly herbaceous vegetation to increasing amounts of woody shrubs. Herbaceous vegetation is still the largest production in this state. This state can shift back to the reference community with good management practices such as prescribed grazing, brush management and pest management. In this state it is unlikely that prescribed burning could be used due to the limited fuel load and poor continuity to carry a fire.

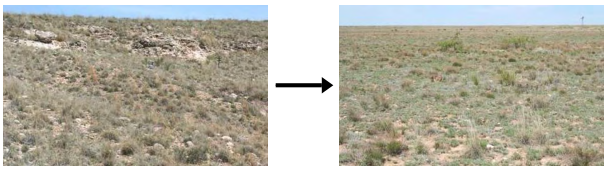
Table 6. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	200	350	500
Shrub/Vine	200	300	400
Forb	40	70	100
Microbiotic Crusts	0	0	0
Tree	0	0	0
Total	**440**	**720**	**1000**

Figure 13. Plant community growth curve (percent production by month). TX1252, Shortgrass Dominant/Invading Shrub Community. Warm-season shortgrasses with increasing shrubs and forbs..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	1	3	5	12	16	15	20	18	9	1	0

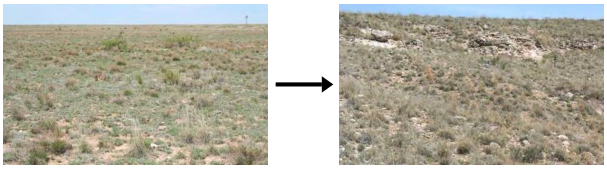
Pathway 1.1A
Community 1.1 to 1.2



Shortgrass/Midgrass Community **Shortgrass/Shrubs Community**

With continuous heavy grazing, no fire, no brush management and/or pest management this site will transition to the Shortgrass/Shrub Community (1.2). As livestock and wildlife numbers increase and grazing use exceeds a plants ability to sustain defoliation, the more palatable and generally more productive species decline in stature, productivity and density.

Pathway 1.2A
Community 1.2 to 1.1



Shortgrass/Shrubs Community **Shortgrass/Midgrass Community**

This state can transition back the reference community with good management practices such as prescribed grazing, brush management and pest management.

Conservation practices

Brush Management
Integrated Pest Management (IPM)
Prescribed Grazing

State 2
Shrubland State

A major threshold will be crossed from the Grassland State (1.0) to the Shrubland State (2.0). In this state, mesquite, shrubs such as broom snakeweed and catclaw acacia will dominate the site. The typical shortgrass

species will be perennial threeawns, hairy tridens and other invading low quality short grasses. Bare areas will increase with annuals filling the voids. The loss of herbaceous cover and increased bare soil encourages accelerated erosion, especially on sites with steeper slopes.

Dominant plant species

- broom snakeweed (*Gutierrezia sarothrae*), shrub
- catclaw acacia (*Acacia greggii*), shrub
- honey mesquite (*Prosopis glandulosa*), shrub

Community 2.1
Shrub/Shortgrass Community

Figure 14. 2.1 Shrub/Shortgrass Community

If long-term, heavy grazing continues with no fire or any form of brush and pest management, a major threshold will be crossed to the Shrub/Shortgrass Community (2.1). In this state, mesquite, broom snakeweed and catclaw acacia will dominate the site. The typical shortgrass species will be perennial threeawns, hairy tridens and other invading low quality short grasses. Bare areas will increase with annuals filling the voids. The loss of herbaceous cover and increased bare soil encourages accelerated erosion, especially on sites with steeper slopes. Nutrient cycling, the water cycle, watershed protection and biological functions have been severely reduced. The plant community is so degraded that it cannot reverse retrogression without extensive energy and management inputs. Prescribed grazing with rest periods during the growing season, re-seeding with adapted native grass species, chemical and/or mechanical brush management, and some form of pest management will be required to return this state back to the reference state. With the reduced amounts of grass fuel, poor continuity and increased bare soil, prescribed burning will not be an option in this state.

Table 7. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Shrub/Vine	400	500	600
Grass/Grasslike	100	200	300
Forb	20	40	60
Microbiotic Crusts	0	0	0
Tree	0	0	0
Total	**520**	**740**	**960**

Figure 16. Plant community growth curve (percent production by month). TX1254, Shrub/Shortgrass/Annuals Community. Spring and fall growth of shortgrasses, annuals, and shrubs..

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	1	4	6	10	16	15	20	15	12	1	0

Transition T1A
State 1 to 2

If long-term, heavy grazing continues with no fire or any form of brush and pest management, a major threshold will be crossed to the Shrub/Shortgrass Community (2.1). In this state, mesquite, broom snakeweed and catclaw acacia will dominate the site. Bare areas will increase with annuals filling the voids.

Restoration pathway R2A
State 2 to 1

Prescribed grazing with rest periods during the growing season, re-seeding with adapted native grass species, chemical and/or mechanical brush management, and some form of pest management will be required to return this state back the reference. With the reduced amounts of grass fuel, poor continuity and increased bare soil, prescribed burning will not be an option in this state.

Conservation practices

Brush Management
Range Planting
Integrated Pest Management (IPM)
Prescribed Grazing

Additional community tables

Table 8. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1	**Shortgrasses**			105–350	
	black grama	BOER4	*Bouteloua eriopoda*	75–250	–
	blue grama	BOGR2	*Bouteloua gracilis*	30–100	–
2	**Midgrasses**			135–450	
	sideoats grama	BOCU	*Bouteloua curtipendula*	30–100	–
	little bluestem	SCSC	*Schizachyrium scoparium*	30–100	–
	large-spike bristlegrass	SEMA5	*Setaria macrostachya*	15–50	–
	Arizona cottontop	DICA8	*Digitaria californica*	15–50	–
	tobosagrass	PLMU3	*Pleuraphis mutica*	15–50	–
	slim tridens	TRMUE	*Tridens muticus var. elongatus*	15–50	–
	Reverchon's bristlegrass	SERE3	*Setaria reverchonii*	8–25	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	7–25	–
3	**Shortgrasses**			45–150	
	Wright's threeawn	ARPUW	*Aristida purpurea var. wrightii*	15–50	–
	buffalograss	BODA2	*Bouteloua dactyloides*	15–50	–
	hairy grama	BOHI2	*Bouteloua hirsuta*	8–25	–
	fall witchgrass	DICO6	*Digitaria cognata*	7–25	–
Forb					
4	**Forbs**			50–100	
	dotted blazing star	LIPU	*Liatris punctata*	8–16	–
	evening primrose	OENOT	*Oenothera*	6–12	–
	rockdaisy	PERIT	*Perityle*	6–12	–
	awnless bushsunflower	SICA7	*Simsia calva*	6–12	–
	whiteflower prairie clover	DAAL	*Dalea albiflora*	6–12	–
	beeblossom	GAURA	*Gaura*	6–12	–
	trailing krameria	KRLA	*Krameria lanceolata*	6–12	–
Shrub/Vine					
5	**Shrubs**			0–1	
	catclaw acacia	ACGRG3	*Acacia greggii var. greggii*	0–1	–
	featherplume	DAFO	*Dalea formosa*	0–1	–
	clapweed	EPAN	*Ephedra antisyphilitica*	0–1	–

Animal community

This site is inhabited by dove, quail, deer and pronghorn. Limited populations of pronghorn antelope frequent the site. The limited amount of woody plants does not provide good cover and food sources for deer.

Hydrological functions

Surface runoff is moderate to rapid on these soils due to the percent slope. Water erosion is slight where the vegetative cover is good, but overgrazed areas are subject to severe water erosion hazards.

Recreational uses

This site has very little value from an aesthetic standpoint. The site is occupied almost exclusively by native short

and midgrass species with few woody shrubs. Recreational activities could include bird hunting, camping, hiking, bird watching, photography, and horseback riding.

Wood products

None.

Other products

None.

Other information

None.

Inventory data references

NRCS FOTG – Section II of the FOTG Range Site Descriptions and numerous historical accounts of vegetative conditions at the time of early settlement in the area were used in the development of this site description. Vegetative inventories were made at several site locations for support documentation.

Inventory Data References (documents):
NRCS FOTG – Section II - Range Site Descriptions
NRCS Clipping Data summaries over a 20 year period

Other references

J.R. Bell, USDA-NRCS Rangeland Management Specialist (retired)
Natural Resources Conservation Service - Range Site Descriptions
USDA-Natural Resources Conservation Service - Soil Surveys & Website soil database
Rathjen, Frederick W., The Texas Panhandle Frontier, Rev. 1998, Univ. of Texas Press
Hatch, Brown and Ghandi, Vascular Plants of Texas (An Ecological Checklist)
Texas A&M Exp. Station, College Station, Texas
Texas Tech University – Department of Natural Resources Management, Lubbock, Texas

Technical Reviewers and Contributors:
Mark Moseley, RMS, NRCS, Boerne, Texas
Justin Clary, RMS, NRCS, Temple, Texas

Contributors

Clint Rollins, RMS, NRCS, Amarillo, Texas
Todd Carr, SS, NRCS, Lubbock, Texas

Approval

Bryan Christensen, 9/11/2023

Acknowledgments

Site Development and Testing Plan

Future work, as described in a Project Plan, to validate the information in this Provisional Ecological Site Description is needed. This will include field activities to collect low, medium and high intensity sampling, soil correlations, and analysis of that data. Annual field reviews should be done by soil scientists and vegetation specialists. A final field review, peer review, quality control, and quality assurance reviews of the ESD will be needed to produce the final document.

Annual reviews of the Project Plan are to be conducted by the Ecological Site Technical Team.

Mark Moseley, RMS, NRCS, Boerne, Texas
Justin Clary, RMS, NRCS, Temple, Texas

Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

Author(s)/participant(s)	Stan Bradbury, Zone RMS, NRCS, Lubbock, Texas
Contact for lead author	806-791-0581
Date	02/09/2010
Approved by	Bryan Christensen
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** Due to percent slopes, rills will be common.

2. **Presence of water flow patterns:** Due to percent slopes, water flow patterns will be common.

3. **Number and height of erosional pedestals or terracettes:** Due to percent slopes, pedestals/terracettes will be common.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** 25-30% mineral soil, low percentage due to rock fragments scattered throughout the soil profile.

5. **Number of gullies and erosion associated with gullies:** None to slight.

6. **Extent of wind scoured, blowouts and/or depositional areas:** None to slight.

7. **Amount of litter movement (describe size and distance expected to travel):** None to slight.

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** Moderate resistance to surface erosion.

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** Loamy friable surface; low SOM.

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** Low vegetative cover and percent slopes make this site susceptible to erosion. This site is a moderately permeable soil, runoff is medium and available water holding capacity is very low.

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None.

12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**

    Dominant: Warm-season shortgrasses > Warm-season midgrasses >>

    Sub-dominant:

    Other: Forbs > Shrubs/Vines

    Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Grasses due to their growth habit will exhibit some mortality and decadence, though minimal.

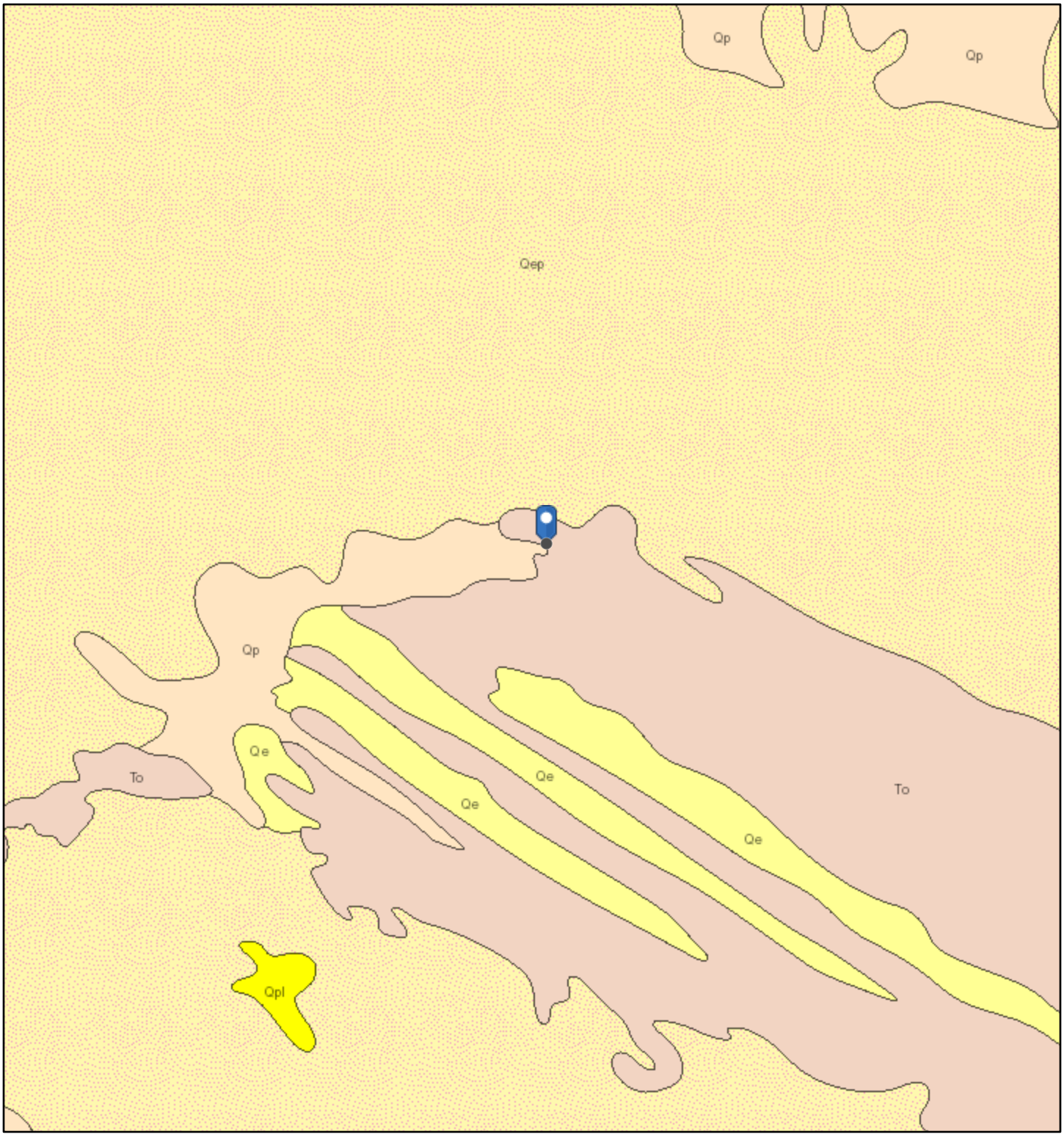
14. **Average percent litter cover (%) and depth (in):** Litter is dominantly herbaceous.

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 300 to 1,000 pounds per acre.

16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:** Catclaw acacia, broom snakeweed, and mesquite can become invasive.

17. **Perennial plant reproductive capability:** All plant species should be capable of reproduction, except during periods of prolonged drought conditions, heavy natural herbivory or intense wildfires.

ArcGIS Web Map



5/28/2024, 3:12:07 PM

1:144,448

0 1 2 4 mi

0 1.5 3 6 km

Lithologic Units

- Playa——Alluvium and evaporite deposits (Holocene)
- Water——Perenial standing water
- Qa——Alluvium (Holocene to upper Pleistocene)

Esri, NASA, NGA, USGS, NMBGMR, USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS

ArcGIS Web AppBuilder

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National

APPENDIX C – Daily Field and Sampling Report(s)

Daily Site Visit Report

Client:	BTA Oil Producers LLC	Inspection Date:	5/31/2024
Site Location Name:	Aline 9012 JVP #002	Report Run Date:	6/1/2024 11:07 PM
Client Contact Name:	Kelton Baird	API #:	30-025-42771
Client Contact Phone #:	432-312-2203		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	5/31/2024 9:45 AM
Departed Site	5/31/2024 3:00 PM

Field Notes

14:45 Completed safety paperwork on site

14:45 On site to begin delineation sampling

14:46 Obtained:
BH24-01 @ 0’ and 2’ depth.
BH24-02 @ 0’ and 0.5’ depth.
BH24-03 @ 0’ and 1’ depth.

All hit refusal as site is built into side of hill ~shallow bedrock.

Next Steps & Recommendations

1 Continue sampling

Daily Site Visit Report

Site Photos

Viewing Direction: East

BH24-01 immediately west of flare

Viewing Direction: South

BH24-02 north of flare up hill

Viewing Direction: North

BH24-03 immediately south of flare

Viewing Direction: Northwest

Outcrop of bedrock on north side of site

Daily Site Visit Report

Viewing Direction: North	**Viewing Direction**: Northeast
	
Outcrop of bedrock on north side of site	Outcrop of bedrock on north side of site

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Austin Harris

Signature:

Daily Site Visit Report

Client:	BTA Oil Producers LLC	Inspection Date:	6/1/2024
Site Location Name:	Aline 9012 JVP #002	Report Run Date:	6/1/2024 11:07 PM
Client Contact Name:	Kelton Baird	API #:	30-025-42771
Client Contact Phone #:	432-312-2203		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	6/1/2024 8:00 AM
Departed Site	6/1/2024 3:00 PM

Field Notes

14:46 Completed safety paperwork on site

14:46 Continuing delineation sampling

14:47 Obtained:
BH24-04 @ 0’ and 1.5’ depth.
BH24-05 @ 0’ and 1.0’ depth.
BH24-06 @ 0’ and 1.0’ depth.
BH24-07 @ 0’ and 1.0’ depth.
BH24-08 @ 0’ and 1.0’ depth.

*all samples hit refusal at their lowest depth

14:48 Site is built into side of hill and bedrock is very shallow.
If further delineation is needed to satisfy deeper horizontal or vertical depths, mechanical tools will be needed.

Next Steps & Recommendations

1 Consult with PM on next steps.

Daily Site Visit Report

Site Photos

Viewing Direction: North	**Viewing Direction**: West
	
BH24-04	BH24-05
Viewing Direction: Southwest	**Viewing Direction**: West
	
BH24-06	BH24-07

Daily Site Visit Report

Viewing Direction: West

BH24-08

Daily Site Visit Report

Daily Site Visit Signature

Inspector: Austin Harris

Signature: 

Signature

APPENDIX E – Laboratory Data Reports and Chain of Custody Forms

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

June 07, 2024

CHANCE DIXON

VERTEX RESOURCE GROUP

420 SOUTH MAIN, SUITE 202

TULSA, OK 74103

RE: NINE 9012 JVP #002

Enclosed are the results of analyses for samples received by the laboratory on 06/04/24 14:20.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-23-16. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Mike Snyder For Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

VERTEX RESOURCE GROUP
CHANCE DIXON
420 SOUTH MAIN, SUITE 202
TULSA OK, 74103
Fax To: NA

Received:	06/04/2024	Sampling Date:	05/31/2024
Reported:	06/07/2024	Sampling Type:	Soil
Project Name:	NINE 9012 JVP #002	Sampling Condition:	Cool & Intact
Project Number:	24E - 02758	Sample Received By:	Tamara Oldaker
Project Location:	BTA - LEA CO NM		

Sample ID: BH24 - 01 0' (H243137-01)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/05/2024	ND	2.15	107	2.00	6.61	
Toluene*	<0.050	0.050	06/05/2024	ND	2.07	103	2.00	4.07	
Ethylbenzene*	<0.050	0.050	06/05/2024	ND	2.03	102	2.00	2.49	
Total Xylenes*	<0.150	0.150	06/05/2024	ND	5.94	99.1	6.00	2.52	
Total BTEX	<0.300	0.300	06/05/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID *104 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	06/06/2024	ND	432	108	400	3.64	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/05/2024	ND	209	105	200	2.00	
DRO >C10-C28*	<10.0	10.0	06/05/2024	ND	215	108	200	4.07	
EXT DRO >C28-C36	<10.0	10.0	06/05/2024	ND					

Surrogate: 1-Chlorooctane *69.9 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *62.6 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

VERTEX RESOURCE GROUP
CHANCE DIXON
420 SOUTH MAIN, SUITE 202
TULSA OK, 74103
Fax To: NA

Received:	06/04/2024	Sampling Date:	05/31/2024
Reported:	06/07/2024	Sampling Type:	Soil
Project Name:	NINE 9012 JVP #002	Sampling Condition:	Cool & Intact
Project Number:	24E - 02758	Sample Received By:	Tamara Oldaker
Project Location:	BTA - LEA CO NM		

Sample ID: BH24 - 01 2' (H243137-02)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/05/2024	ND	2.15	107	2.00	6.61	
Toluene*	<0.050	0.050	06/05/2024	ND	2.07	103	2.00	4.07	
Ethylbenzene*	<0.050	0.050	06/05/2024	ND	2.03	102	2.00	2.49	
Total Xylenes*	<0.150	0.150	06/05/2024	ND	5.94	99.1	6.00	2.52	
Total BTEX	<0.300	0.300	06/05/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID *105 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	06/06/2024	ND	432	108	400	3.64	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/05/2024	ND	209	105	200	2.00	
DRO >C10-C28*	<10.0	10.0	06/05/2024	ND	215	108	200	4.07	
EXT DRO >C28-C36	<10.0	10.0	06/05/2024	ND					

Surrogate: 1-Chlorooctane *84.0 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *77.4 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

VERTEX RESOURCE GROUP
CHANCE DIXON
420 SOUTH MAIN, SUITE 202
TULSA OK, 74103
Fax To: NA

Received:	06/04/2024	Sampling Date:	05/31/2024
Reported:	06/07/2024	Sampling Type:	Soil
Project Name:	NINE 9012 JVP #002	Sampling Condition:	Cool & Intact
Project Number:	24E - 02758	Sample Received By:	Tamara Oldaker
Project Location:	BTA - LEA CO NM		

Sample ID: BH24 - 02 0' (H243137-03)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/05/2024	ND	2.15	107	2.00	6.61	
Toluene*	<0.050	0.050	06/05/2024	ND	2.07	103	2.00	4.07	
Ethylbenzene*	<0.050	0.050	06/05/2024	ND	2.03	102	2.00	2.49	
Total Xylenes*	<0.150	0.150	06/05/2024	ND	5.94	99.1	6.00	2.52	
Total BTEX	<0.300	0.300	06/05/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID *104 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	06/06/2024	ND	432	108	400	3.64	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/05/2024	ND	212	106	200	3.03	
DRO >C10-C28*	<10.0	10.0	06/05/2024	ND	202	101	200	4.22	
EXT DRO >C28-C36	<10.0	10.0	06/05/2024	ND					

Surrogate: 1-Chlorooctane *81.6 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *86.2 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

VERTEX RESOURCE GROUP
CHANCE DIXON
420 SOUTH MAIN, SUITE 202
TULSA OK, 74103
Fax To: NA

Received:	06/04/2024	Sampling Date:	05/31/2024
Reported:	06/07/2024	Sampling Type:	Soil
Project Name:	NINE 9012 JVP #002	Sampling Condition:	Cool & Intact
Project Number:	24E - 02758	Sample Received By:	Tamara Oldaker
Project Location:	BTA - LEA CO NM		

Sample ID: BH24 - 02 .5' (H243137-04)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/06/2024	ND	2.15	107	2.00	6.61	
Toluene*	<0.050	0.050	06/06/2024	ND	2.07	103	2.00	4.07	
Ethylbenzene*	<0.050	0.050	06/06/2024	ND	2.03	102	2.00	2.49	
Total Xylenes*	<0.150	0.150	06/06/2024	ND	5.94	99.1	6.00	2.52	
Total BTEX	<0.300	0.300	06/06/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID *107 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	06/06/2024	ND	432	108	400	3.64	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/05/2024	ND	212	106	200	3.03	
DRO >C10-C28*	<10.0	10.0	06/05/2024	ND	202	101	200	4.22	
EXT DRO >C28-C36	<10.0	10.0	06/05/2024	ND					

Surrogate: 1-Chlorooctane *63.1 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *66.2 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

VERTEX RESOURCE GROUP
CHANCE DIXON
420 SOUTH MAIN, SUITE 202
TULSA OK, 74103
Fax To: NA

Received:	06/04/2024	Sampling Date:	05/31/2024
Reported:	06/07/2024	Sampling Type:	Soil
Project Name:	NINE 9012 JVP #002	Sampling Condition:	Cool & Intact
Project Number:	24E - 02758	Sample Received By:	Tamara Oldaker
Project Location:	BTA - LEA CO NM		

Sample ID: BH24 - 03 0' (H243137-05)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/06/2024	ND	2.15	107	2.00	6.61	
Toluene*	<0.050	0.050	06/06/2024	ND	2.07	103	2.00	4.07	
Ethylbenzene*	<0.050	0.050	06/06/2024	ND	2.03	102	2.00	2.49	
Total Xylenes*	<0.150	0.150	06/06/2024	ND	5.94	99.1	6.00	2.52	
Total BTEX	<0.300	0.300	06/06/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID *104 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: HM

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	06/06/2024	ND	432	108	400	3.64	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/05/2024	ND	212	106	200	3.03	
DRO >C10-C28*	<10.0	10.0	06/05/2024	ND	202	101	200	4.22	
EXT DRO >C28-C36	<10.0	10.0	06/05/2024	ND					

Surrogate: 1-Chlorooctane *84.6 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *94.8 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

VERTEX RESOURCE GROUP
CHANCE DIXON
420 SOUTH MAIN, SUITE 202
TULSA OK, 74103
Fax To: NA

Received:	06/04/2024	Sampling Date:	05/31/2024
Reported:	06/07/2024	Sampling Type:	Soil
Project Name:	NINE 9012 JVP #002	Sampling Condition:	Cool & Intact
Project Number:	24E - 02758	Sample Received By:	Tamara Oldaker
Project Location:	BTA - LEA CO NM		

Sample ID: BH24 - 03 1' (H243137-06)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/06/2024	ND	2.15	107	2.00	6.61	
Toluene*	<0.050	0.050	06/06/2024	ND	2.07	103	2.00	4.07	
Ethylbenzene*	<0.050	0.050	06/06/2024	ND	2.03	102	2.00	2.49	
Total Xylenes*	<0.150	0.150	06/06/2024	ND	5.94	99.1	6.00	2.52	
Total BTEX	<0.300	0.300	06/06/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID *108 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	06/07/2024	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/05/2024	ND	212	106	200	3.03	
DRO >C10-C28*	<10.0	10.0	06/05/2024	ND	202	101	200	4.22	
EXT DRO >C28-C36	<10.0	10.0	06/05/2024	ND					

Surrogate: 1-Chlorooctane *112 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *119 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

VERTEX RESOURCE GROUP
CHANCE DIXON
420 SOUTH MAIN, SUITE 202
TULSA OK, 74103
Fax To: NA

Received:	06/04/2024	Sampling Date:	06/01/2024
Reported:	06/07/2024	Sampling Type:	Soil
Project Name:	NINE 9012 JVP #002	Sampling Condition:	Cool & Intact
Project Number:	24E - 02758	Sample Received By:	Tamara Oldaker
Project Location:	BTA - LEA CO NM		

Sample ID: BH24 - 04 0' (H243137-07)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/06/2024	ND	2.15	107	2.00	6.61	
Toluene*	<0.050	0.050	06/06/2024	ND	2.07	103	2.00	4.07	
Ethylbenzene*	<0.050	0.050	06/06/2024	ND	2.03	102	2.00	2.49	
Total Xylenes*	<0.150	0.150	06/06/2024	ND	5.94	99.1	6.00	2.52	
Total BTEX	<0.300	0.300	06/06/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID *107 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	06/07/2024	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/05/2024	ND	212	106	200	3.03	
DRO >C10-C28*	<10.0	10.0	06/05/2024	ND	202	101	200	4.22	
EXT DRO >C28-C36	<10.0	10.0	06/05/2024	ND					

Surrogate: 1-Chlorooctane *111 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *121 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

VERTEX RESOURCE GROUP
CHANCE DIXON
420 SOUTH MAIN, SUITE 202
TULSA OK, 74103
Fax To: NA

Received:	06/04/2024	Sampling Date:	06/01/2024
Reported:	06/07/2024	Sampling Type:	Soil
Project Name:	NINE 9012 JVP #002	Sampling Condition:	Cool & Intact
Project Number:	24E - 02758	Sample Received By:	Tamara Oldaker
Project Location:	BTA - LEA CO NM		

Sample ID: BH24 - 04 1.5' (H243137-08)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/06/2024	ND	2.15	107	2.00	6.61	
Toluene*	<0.050	0.050	06/06/2024	ND	2.07	103	2.00	4.07	
Ethylbenzene*	<0.050	0.050	06/06/2024	ND	2.03	102	2.00	2.49	
Total Xylenes*	<0.150	0.150	06/06/2024	ND	5.94	99.1	6.00	2.52	
Total BTEX	<0.300	0.300	06/06/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID *105 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**48.0**	16.0	06/07/2024	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/05/2024	ND	212	106	200	3.03	
DRO >C10-C28*	<10.0	10.0	06/05/2024	ND	202	101	200	4.22	
EXT DRO >C28-C36	<10.0	10.0	06/05/2024	ND					

Surrogate: 1-Chlorooctane *103 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *115 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

VERTEX RESOURCE GROUP
CHANCE DIXON
420 SOUTH MAIN, SUITE 202
TULSA OK, 74103
Fax To: NA

Received:	06/04/2024	Sampling Date:	06/01/2024
Reported:	06/07/2024	Sampling Type:	Soil
Project Name:	NINE 9012 JVP #002	Sampling Condition:	Cool & Intact
Project Number:	24E - 02758	Sample Received By:	Tamara Oldaker
Project Location:	BTA - LEA CO NM		

Sample ID: BH24 - 05 0.0' (H243137-09)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/06/2024	ND	2.15	107	2.00	6.61	
Toluene*	<0.050	0.050	06/06/2024	ND	2.07	103	2.00	4.07	
Ethylbenzene*	<0.050	0.050	06/06/2024	ND	2.03	102	2.00	2.49	
Total Xylenes*	<0.150	0.150	06/06/2024	ND	5.94	99.1	6.00	2.52	
Total BTEX	<0.300	0.300	06/06/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID *108 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	06/07/2024	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/05/2024	ND	212	106	200	3.03	
DRO >C10-C28*	<10.0	10.0	06/05/2024	ND	202	101	200	4.22	
EXT DRO >C28-C36	<10.0	10.0	06/05/2024	ND					

Surrogate: 1-Chlorooctane *91.3 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *106 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

VERTEX RESOURCE GROUP
CHANCE DIXON
420 SOUTH MAIN, SUITE 202
TULSA OK, 74103
Fax To: NA

Received:	06/04/2024	Sampling Date:	06/01/2024
Reported:	06/07/2024	Sampling Type:	Soil
Project Name:	NINE 9012 JVP #002	Sampling Condition:	Cool & Intact
Project Number:	24E - 02758	Sample Received By:	Tamara Oldaker
Project Location:	BTA - LEA CO NM		

Sample ID: BH24 - 05 1.0' (H243137-10)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/06/2024	ND	2.15	107	2.00	6.61	
Toluene*	<0.050	0.050	06/06/2024	ND	2.07	103	2.00	4.07	
Ethylbenzene*	<0.050	0.050	06/06/2024	ND	2.03	102	2.00	2.49	
Total Xylenes*	<0.150	0.150	06/06/2024	ND	5.94	99.1	6.00	2.52	
Total BTEX	<0.300	0.300	06/06/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID *106 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	06/07/2024	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/05/2024	ND	212	106	200	3.03	
DRO >C10-C28*	<10.0	10.0	06/05/2024	ND	202	101	200	4.22	
EXT DRO >C28-C36	<10.0	10.0	06/05/2024	ND					

Surrogate: 1-Chlorooctane *72.5 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *76.3 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

VERTEX RESOURCE GROUP
CHANCE DIXON
420 SOUTH MAIN, SUITE 202
TULSA OK, 74103
Fax To: NA

Received:	06/04/2024	Sampling Date:	06/01/2024
Reported:	06/07/2024	Sampling Type:	Soil
Project Name:	NINE 9012 JVP #002	Sampling Condition:	Cool & Intact
Project Number:	24E - 02758	Sample Received By:	Tamara Oldaker
Project Location:	BTA - LEA CO NM		

Sample ID: BH24 - 06 0' (H243137-11)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/06/2024	ND	2.15	107	2.00	6.61	
Toluene*	<0.050	0.050	06/06/2024	ND	2.07	103	2.00	4.07	
Ethylbenzene*	<0.050	0.050	06/06/2024	ND	2.03	102	2.00	2.49	
Total Xylenes*	<0.150	0.150	06/06/2024	ND	5.94	99.1	6.00	2.52	
Total BTEX	<0.300	0.300	06/06/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID *106 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	06/07/2024	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/05/2024	ND	212	106	200	3.03	
DRO >C10-C28*	<10.0	10.0	06/05/2024	ND	202	101	200	4.22	
EXT DRO >C28-C36	<10.0	10.0	06/05/2024	ND					

Surrogate: 1-Chlorooctane *91.1 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *95.6 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

VERTEX RESOURCE GROUP
CHANCE DIXON
420 SOUTH MAIN, SUITE 202
TULSA OK, 74103
Fax To: NA

Received:	06/04/2024	Sampling Date:	06/01/2024
Reported:	06/07/2024	Sampling Type:	Soil
Project Name:	NINE 9012 JVP #002	Sampling Condition:	Cool & Intact
Project Number:	24E - 02758	Sample Received By:	Tamara Oldaker
Project Location:	BTA - LEA CO NM		

Sample ID: BH24 - 06 1' (H243137-12)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/06/2024	ND	1.91	95.3	2.00	2.90	
Toluene*	<0.050	0.050	06/06/2024	ND	1.90	95.1	2.00	0.658	
Ethylbenzene*	<0.050	0.050	06/06/2024	ND	1.94	96.9	2.00	0.181	
Total Xylenes*	<0.150	0.150	06/06/2024	ND	5.62	93.6	6.00	0.198	
Total BTEX	<0.300	0.300	06/06/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID *90.6 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**80.0**	16.0	06/07/2024	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/05/2024	ND	212	106	200	3.03	
DRO >C10-C28*	<10.0	10.0	06/05/2024	ND	202	101	200	4.22	
EXT DRO >C28-C36	<10.0	10.0	06/05/2024	ND					

Surrogate: 1-Chlorooctane *82.5 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *85.8 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

VERTEX RESOURCE GROUP
CHANCE DIXON
420 SOUTH MAIN, SUITE 202
TULSA OK, 74103
Fax To: NA

Received:	06/04/2024	Sampling Date:	06/01/2024
Reported:	06/07/2024	Sampling Type:	Soil
Project Name:	NINE 9012 JVP #002	Sampling Condition:	Cool & Intact
Project Number:	24E - 02758	Sample Received By:	Tamara Oldaker
Project Location:	BTA - LEA CO NM		

Sample ID: BH24 - 07 0' (H243137-13)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/06/2024	ND	1.91	95.3	2.00	2.90	
Toluene*	<0.050	0.050	06/06/2024	ND	1.90	95.1	2.00	0.658	
Ethylbenzene*	<0.050	0.050	06/06/2024	ND	1.94	96.9	2.00	0.181	
Total Xylenes*	<0.150	0.150	06/06/2024	ND	5.62	93.6	6.00	0.198	
Total BTEX	<0.300	0.300	06/06/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID *91.3 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	06/07/2024	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/05/2024	ND	212	106	200	3.03	
DRO >C10-C28*	<10.0	10.0	06/05/2024	ND	202	101	200	4.22	
EXT DRO >C28-C36	<10.0	10.0	06/05/2024	ND					

Surrogate: 1-Chlorooctane *88.2 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *91.9 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

VERTEX RESOURCE GROUP
CHANCE DIXON
420 SOUTH MAIN, SUITE 202
TULSA OK, 74103
Fax To: NA

Received:	06/04/2024	Sampling Date:	06/01/2024
Reported:	06/07/2024	Sampling Type:	Soil
Project Name:	NINE 9012 JVP #002	Sampling Condition:	Cool & Intact
Project Number:	24E - 02758	Sample Received By:	Tamara Oldaker
Project Location:	BTA - LEA CO NM		

Sample ID: BH24 - 07 1' (H243137-14)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/06/2024	ND	1.91	95.3	2.00	2.90	
Toluene*	<0.050	0.050	06/06/2024	ND	1.90	95.1	2.00	0.658	
Ethylbenzene*	<0.050	0.050	06/06/2024	ND	1.94	96.9	2.00	0.181	
Total Xylenes*	<0.150	0.150	06/06/2024	ND	5.62	93.6	6.00	0.198	
Total BTEX	<0.300	0.300	06/06/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID *89.8 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	06/07/2024	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/05/2024	ND	212	106	200	3.03	
DRO >C10-C28*	<10.0	10.0	06/05/2024	ND	202	101	200	4.22	
EXT DRO >C28-C36	<10.0	10.0	06/05/2024	ND					

Surrogate: 1-Chlorooctane *83.0 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *91.0 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

VERTEX RESOURCE GROUP
CHANCE DIXON
420 SOUTH MAIN, SUITE 202
TULSA OK, 74103
Fax To: NA

Received:	06/04/2024	Sampling Date:	06/01/2024
Reported:	06/07/2024	Sampling Type:	Soil
Project Name:	NINE 9012 JVP #002	Sampling Condition:	Cool & Intact
Project Number:	24E - 02758	Sample Received By:	Tamara Oldaker
Project Location:	BTA - LEA CO NM		

Sample ID: BH24 - 08 0' (H243137-15)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/06/2024	ND	1.91	95.3	2.00	2.90	
Toluene*	<0.050	0.050	06/06/2024	ND	1.90	95.1	2.00	0.658	
Ethylbenzene*	<0.050	0.050	06/06/2024	ND	1.94	96.9	2.00	0.181	
Total Xylenes*	<0.150	0.150	06/06/2024	ND	5.62	93.6	6.00	0.198	
Total BTEX	<0.300	0.300	06/06/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID *89.7 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	06/07/2024	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/05/2024	ND	212	106	200	3.03	
DRO >C10-C28*	<10.0	10.0	06/05/2024	ND	202	101	200	4.22	
EXT DRO >C28-C36	<10.0	10.0	06/05/2024	ND					

Surrogate: 1-Chlorooctane *84.1 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *89.4 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

VERTEX RESOURCE GROUP
CHANCE DIXON
420 SOUTH MAIN, SUITE 202
TULSA OK, 74103
Fax To: NA

Received:	06/04/2024	Sampling Date:	06/01/2024
Reported:	06/07/2024	Sampling Type:	Soil
Project Name:	NINE 9012 JVP #002	Sampling Condition:	Cool & Intact
Project Number:	24E - 02758	Sample Received By:	Tamara Oldaker
Project Location:	BTA - LEA CO NM		

Sample ID: BH24 - 08 1' (H243137-16)

BTEX 8021B mg/kg Analyzed By: JH

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	06/06/2024	ND	1.91	95.3	2.00	2.90	
Toluene*	<0.050	0.050	06/06/2024	ND	1.90	95.1	2.00	0.658	
Ethylbenzene*	<0.050	0.050	06/06/2024	ND	1.94	96.9	2.00	0.181	
Total Xylenes*	<0.150	0.150	06/06/2024	ND	5.62	93.6	6.00	0.198	
Total BTEX	<0.300	0.300	06/06/2024	ND					

Surrogate: 4-Bromofluorobenzene (PID *89.8 %* *71.5-134*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	06/07/2024	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	06/05/2024	ND	212	106	200	3.03	
DRO >C10-C28*	<10.0	10.0	06/05/2024	ND	202	101	200	4.22	
EXT DRO >C28-C36	<10.0	10.0	06/05/2024	ND					

Surrogate: 1-Chlorooctane *96.7 %* *48.2-134*

Surrogate: 1-Chlorooctadecane *104 %* *49.1-148*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name:	Vertex / BTA	BILL TO	
Project Manager:	Chance Dixon	P.O. #:	
Address:	ON FILE	Company:	BTA
City:	State: Zip:	Attn:	
Phone #:	Fax #:	Address:	
Project #:	24E-02758 Project Owner:	City:	
Project Name:	Aline 9012 JVP #002	State: Zip:	
Project Location:	Lea County, NM	Phone #:	
Sampler Name:	Austin Harris	Fax #:	

FOR LAB USE ONLY

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE:	ICE	COOL	OTHER:	SAMPLING: DATE	TIME	BTEX (8015)	TPH (8021)	Cl
H243137-1	BH24-01 0'	G	1			X						X		5-31-24	10:00	X	X	X
-2	BH24-01 2'	G	1			X						X		5-31-24	10:10	X	X	X
-3	BH24-02 0'	G	1			X						X		5-31-24	10:20	X	X	X
-4	BH24-02 .5'	G	1			X						X		5-31-24	10:30	X	X	X
-5	BH24-03 0'	G	1			X						X		5-31-24	10:40	X	X	X
-6	BH24-03 1'	G	1			X						X		5-31-24	10:50	X	X	X
-7	BH24-04 0'	G	1			X						X		6-1-24	0900	X	X	X
-8	BH24-04 1.5'	G	1			X						X		6-1-24	0915	X	X	X
-9	BH24-05 0.0'	G	1			X						X		6-1-24	0930	X	X	X
-10	BH24-05 1.0'	G	1			X						X		6-1-24	0945	X	X	X

Relinquished By:	Date: 6.4.24 Time: 1420	Received By:	Verbal Result: ☐ Yes ☐ No	Add'l Phone #:	
Relinquished By:	Date: Time:	Received By:	All Results are emailed. Please provide Email address:		
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Observed Temp. °C / Corrected Temp. °C -1.2	Sample Condition: Cool (Yes) Intact (Yes)	CHECKED BY: (Initials) TO	REMARKS: Direct Bill BTA	

Turnaround Time: Standard ☐ Bacteria (only) Sample Condition
Rush ☐ Cool Intact Observed Temp. °C
Thermometer ID ~~#113~~ #140
Correction Factor ~~0.5°C~~ T.O. 6/4/24
☐ Yes ☐ Yes ☐ No ☐ No Corrected Temp. °C

FORM-006 R 3.2 10/07/21

† Cardinal cannot accept verbal changes. Please email changes to celey.keene@cardinallabsnm.com

CARDINAL Laboratories

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name:	Verter / BTA
Project Manager:	Chance Dixon
Address:	ON FILE
City:	State: Zip:
Phone #:	Fax #:
Project #:	24E-02758 Project Owner:
Project Name:	Aline 9012 JVP #002
Project Location:	Lea County, NM
Sampler Name:	Austin Harris

BILL TO

P.O. #:	
Company:	BTA
Attn:	
Address:	
City:	
State:	Zip:
Phone #:	
Fax #:	

FOR LAB USE ONLY

Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE	COOL	OTHER :	SAMPLING: DATE	TIME	BTEX (8015)	TPH (8021)	Cl
H24137																		
11	BH24-06 0'	G	1			S						C		6-1-24	1000			
12	BH24-06 1'														1015			
13	BH24-07 0'														1030			
14	BH24-07 1'														1045			
15	BH24-08 0'														1100			
16	BH24-08 1'														1115			

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By:	Date: 6-4-24	Received By:	Verbal Result: ☐ Yes ☐ No — Add'l Phone #:
	Time: 1420		All Results are emailed. Please provide Email address:
Relinquished By:	Date:	Received By:	REMARKS: Direct Bill BTA
	Time:		

Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Observed Temp. °C 1.2	Sample Condition: Cool ☑ Yes ☐ No — Intact ☑ Yes ☐ No	CHECKED BY: (Initials) T.O.	Turnaround Time: Standard ☐ Bacteria (only) Sample Condition; Rush ☐ Cool Intact Observed Temp. °C; Thermometer ID ~~#113~~ #140; Correction Factor ~~-0.5 °C~~ T.O. 6/4/24; ☐ Yes ☐ Yes ☐ No ☐ No Corrected Temp. °C

FORM-006 R 3.2 10/07/21

† Cardinal cannot accept verbal changes. Please email changes to celey.keene@cardinallabsnm.com

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

QUESTIONS

Action 353728

QUESTIONS

Operator: BTA OIL PRODUCERS, LLC 104 S Pecos Midland, TX 79701	OGRID: 260297
	Action Number: 353728
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nOY1704645272**
Incident Name	**NOY1704645272 BTA ALINE 9012 HEATER TREATER OVERSPRAY @ 30-025-42771**
Incident Type	**Release Other**
Incident Status	**Remediation Closure Report Received**
Incident Well	**[30-025-42771] ALINE 9012 JVP #002**

Location of Release Source	
Please answer all the questions in this group.	
Site Name	BTA Aline 9012 heater treater overspray
Date Release Discovered	02/01/2017
Surface Owner	Private

Incident Details	
Please answer all the questions in this group.	
Incident Type	Release Other
Did this release result in a fire or is the result of a fire	No
Did this release result in any injuries	No
Has this release reached or does it have a reasonable probability of reaching a watercourse	No
Has this release endangered or does it have a reasonable probability of endangering public health	No
Has this release substantially damaged or will it substantially damage property or the environment	No
Is this release of a volume that is or may with reasonable probability be detrimental to fresh water	No

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.	
Crude Oil Released (bbls) Details	Cause: Equipment Failure | Other (Specify) | Crude Oil | Released: 4 BBL | Recovered: 2 BBL | Lost: 2 BBL.
Produced Water Released (bbls) Details	*Not answered.*
Is the concentration of chloride in the produced water >10,000 mg/l	*Not answered.*
Condensate Released (bbls) Details	*Not answered.*
Natural Gas Vented (Mcf) Details	*Not answered.*
Natural Gas Flared (Mcf) Details	*Not answered.*
Other Released Details	*Not answered.*
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	*Not answered.*

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

QUESTIONS (continued)

Operator: BTA OIL PRODUCERS, LLC 104 S Pecos Midland, TX 79701	OGRID: 260297
	Action Number: 353728
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Nature and Volume of Release (continued)	
Is this a gas only submission (i.e. only significant Mcf values reported)	**More info needed to determine if this will be treated as a "gas only" report.**
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	*Unavailable.*
Reasons why this would be considered a submission for a notification of a major release	*Unavailable.*
With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e. gas only) are to be submitted on the C-129 form.	

Initial Response	
The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury.	
The source of the release has been stopped	True
The impacted area has been secured to protect human health and the environment	True
Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices	True
All free liquids and recoverable materials have been removed and managed appropriately	True
If all the actions described above have not been undertaken, explain why	*Not answered.*
Per Paragraph (4) of Subsection B of 19.15.29.8 NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative of actions to date in the follow-up C-141 submission. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC), please prepare and attach all information needed for closure evaluation in the follow-up C-141 submission.	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

I hereby agree and sign off to the above statement	Name: BTA VERTEX Title: Environmental Manager Email: rramos@btaoil.com Date: 06/13/2024

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

QUESTIONS (continued)

Operator: BTA OIL PRODUCERS, LLC 104 S Pecos Midland, TX 79701	OGRID: 260297
	Action Number: 353728
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Site Characterization	
Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
What is the shallowest depth to groundwater beneath the area affected by the release in feet below ground surface (ft bgs)	Less than or equal 25 (ft.)
What method was used to determine the depth to ground water	NM OSE iWaters Database Search
Did this release impact groundwater or surface water	No
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Greater than 5 (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Greater than 5 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Greater than 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between 1 and 5 (mi.)
Any other fresh water well or spring	Between 1 and 5 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Between 1 and 5 (mi.)
A wetland	Between 1000 (ft.) and ½ (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Greater than 5 (mi.)
Categorize the risk of this well / site being in a karst geology	Low
A 100-year floodplain	Greater than 5 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	No

Remediation Plan	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
Requesting a remediation plan approval with this submission	Yes
Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No
Soil Contamination Sampling: (Provide the highest observable value for each, in milligrams per kilograms.)	
Chloride (EPA 300.0 or SM4500 Cl B)	80
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	0
GRO+DRO (EPA SW-846 Method 8015M)	0
BTEX (EPA SW-846 Method 8021B or 8260B)	0
Benzene (EPA SW-846 Method 8021B or 8260B)	0
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
On what estimated date will the remediation commence	05/31/2024
On what date will (or did) the final sampling or liner inspection occur	06/01/2024
On what date will (or was) the remediation complete(d)	06/01/2024
What is the estimated surface area (in square feet) that will be reclaimed	0
What is the estimated volume (in cubic yards) that will be reclaimed	0
What is the estimated surface area (in square feet) that will be remediated	0
What is the estimated volume (in cubic yards) that will be remediated	0
These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.	
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

QUESTIONS (continued)

Operator: BTA OIL PRODUCERS, LLC 104 S Pecos Midland, TX 79701	OGRID: 260297
	Action Number: 353728
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Remediation Plan (continued)	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:	
(Select all answers below that apply.)	
(Ex Situ) Excavation and **off-site** disposal (i.e. dig and haul, hydrovac, etc.)	*Not answered.*
(Ex Situ) Excavation and **on-site** remediation (i.e. On-Site Land Farms)	*Not answered.*
(In Situ) Soil Vapor Extraction	*Not answered.*
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	*Not answered.*
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	*Not answered.*
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	*Not answered.*
Ground Water Abatement pursuant to 19.15.30 NMAC	*Not answered.*
OTHER (Non-listed remedial process)	Yes
Other Non-listed Remedial Process. Please specify	No remedial activities were completed as delineation showed no exceedances.
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

I hereby agree and sign off to the above statement	Name: BTA VERTEX Title: Environmental Manager Email: rramos@btaoil.com Date: 06/13/2024

The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

QUESTIONS (continued)

Operator: BTA OIL PRODUCERS, LLC 104 S Pecos Midland, TX 79701	OGRID: 260297
	Action Number: 353728
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Deferral Requests Only	
Only answer the questions in this group if seeking a deferral upon approval this submission. Each of the following items must be confirmed as part of any request for deferral of remediation.	
Requesting a deferral of the remediation closure due date with the approval of this submission	No

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

QUESTIONS (continued)

Operator: BTA OIL PRODUCERS, LLC 104 S Pecos Midland, TX 79701	OGRID: 260297
	Action Number: 353728
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	**353752**
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	**05/31/2024**
What was the (estimated) number of samples that were to be gathered	**16**
What was the sampling surface area in square feet	**3200**

Remediation Closure Request	
Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.	
Requesting a remediation closure approval with this submission	Yes
Have the lateral and vertical extents of contamination been fully delineated	**Yes**
Was this release entirely contained within a lined containment area	**No**
All areas reasonably needed for production or subsequent drilling operations have been stabilized, returned to the sites existing grade, and have a soil cover that prevents ponding of water, minimizing dust and erosion	Yes
What was the total surface area (in square feet) remediated	0
What was the total volume (cubic yards) remediated	0
All areas not reasonably needed for production or subsequent drilling operations have been reclaimed to contain a minimum of four feet of non-waste contain earthen material with concentrations less than 600 mg/kg chlorides, 100 mg/kg TPH, 50 mg/kg BTEX, and 10 mg/kg Benzene	Yes
What was the total surface area (in square feet) reclaimed	0
What was the total volume (in cubic yards) reclaimed	0
Summarize any additional remediation activities not included by answers (above)	No remedial activities were completed as no exceedances were found during delineation.

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (in .pdf format) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

I hereby agree and sign off to the above statement	Name: BTA VERTEX Title: Environmental Manager Email: rramos@btaoil.com Date: 06/13/2024

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

QUESTIONS (continued)

Operator: BTA OIL PRODUCERS, LLC 104 S Pecos Midland, TX 79701	OGRID: 260297
	Action Number: 353728
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Reclamation Report	
Only answer the questions in this group if all reclamation steps have been completed.	
Requesting a reclamation approval with this submission	No

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 353728

CONDITIONS

Operator: BTA OIL PRODUCERS, LLC 104 S Pecos Midland, TX 79701	OGRID: 260297
	Action Number: 353728
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

CONDITIONS

Created By	Condition	Condition Date
amaxwell	Remediation closure approved.	7/3/2024
amaxwell	For future releases and reports, delineation samples will not be accepted for closure without an approved variance request. Delineation samples and confirmation closure sampling are not the same. Delineation samples are required per 19.15.29.11 NMAC. Confirmation closure samples are required per 19.15.29.12. When delineation samples are below closure criteria, OCD still requires confirmation closure sampling. In the event that delineation samples are below closure criteria, confirmation soil samples must consist of five-point composite samples collected from the surface area of the release, representing no more than 200 ft2 unless otherwise approved.	7/3/2024
amaxwell	The reclamation report will need to include: Executive Summary of the reclamation activities; Scaled Site Map including sampling locations; Analytical results including, but not limited to, results showing that any remaining impacts meet the reclamation standards and results to prove the backfill is non-waste containing; At least one (1) representative 5-point composite sample will need to be collected from the backfill material that will be used for the reclamation of the top four feet of the excavation. OCD reserves the right to request additional sampling if needed; pictures of the backfilled areas showing that the area is back, as nearly as practical, to the original condition or the final land use and maintain those areas to control dust and minimize erosion to the extent practical; pictures of the top layer, which is either the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater; and a revegetation plan.	7/3/2024